GASTROINTESTINAL PROTEIN LOSS IN SEVERE MALABSORPTION COMPLICATED BY IDIOPATHIC (HYPERCATABOLIC) HYPERPROTEINÆMIA

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THE term idiopathic hypoproteinæmia has been used to distinguish low plasma-albumin concentrations of unknown cause from those in which the cause seemed obvious—for example, those associated with nephrosis, gastrointestinal disorders, or malnutrition due to insufficient dietary protein. Albright et al. (1949) found an increased breakdown of albumin in a patient with idiopathic hypoproteinæmia, and Kinsell et al. (1950) confirmed this observation. Similar results have been obtained in children by Ulstrom et al. (1956, 1957), using human serum-albumin labelled with the radioactive isotope ^{131}I.

The distinction between idiopathic and other types of hypoproteinæmia based on an increased rate of catabolism of plasma-albumin is incomplete, however, for Gitlin et al. (1956) found that in nephrosis the low plasma-protein concentrations are due not only to urinary losses of albumin, but also increased catabolism.

Until recently the mechanism of this apparent increase in catabolism in any of these conditions has not been explained. A possible mechanism would be the leakage of protein into the digestive tract, where the breakdown would then take place.

Citrin et al. (1957) found a significant loss of ^{131}I-labelled human serum-albumin into the stomach in a patient with hypertrophic gastritis and hypoproteinæmia. Similar conclusions about loss of protein into the digestive tract were reached by Steinfield et al. (1957) in patients with regional enteritis and ulcerative colitis. Turnover studies with ^{131}I-labelled human serum-albumin would not be expected to give any information about the possibility of the digestive tract being the site of catabolism, because tracer ^{131}I (detached during the breakdown of the albumin) would be rapidly reabsorbed through the walls of the digestive tract, and excreted by the kidneys.

Gordon (1958) injected ^{131}I-labelled polyvinylpyrrolidone (P.V.P.) intravenously in idiopathic hypoproteinæmia. P.V.P. is a biologically inert substance of high molecular weight, containing a range of molecular weights (15,000–117,000) with an average of about 40,000, which has been used to restore plasma-volume (Ravin et al. 1952). When given intravenously, less than 1-5 % of the labelled P.V.P. appears in the fæces in normal human subjects (Gordon 1959, Schwartz and Jarnum 1959). Thus, since it is not susceptible to digestion, any leakage of P.V.P. from the plasma into the digestive tract is shown by the substance appearing in the fæces in significantly greater quantities. Such leakage occurred in nine cases of "hypercatabolic" hypoproteinæmia investigated by Gordon, and in four by Schwartz and Jarnum. Their cases were not suffering from obvious alimentary disorders at the time their hypoproteinæmia was first observed, and their presenting clinical feature was massive œdema.

The findings decribed here are in a child who presented at the age of 3 years with massive œdema and ascites associated with steatorrhœa and severe hypoproteinæmia, believed at first to be secondary to malnutrition due to malabsorption. Extremely low serum-protein levels persisted, however, even after dietary therapy had greatly improved his nutrition and brought his growth-rate to normal. A search for another cause for the hypoproteinæmia was therefore instituted.

Case-report

This boy, who was born on Aug. 26, 1947, will be described in greater detail in a review of atypical cases of the cœliac syndrome treated at the Queen Elizabeth Hospital for Children in recent years. He had a poor social background, and is one of a large family, including his identical twin. None of the relatives has any obvious disability, and the twin has been investigated exhaustively for subclinical evidence of cœliac traits, with negative results.

He became ill in 1951, when aged 3 years 8 months, and gave a short history of diarrhœa, vomiting, œdema, and ascites. He was found to have steatorrhœa and hypoproteinæmia, the total protein concentration being about 4.0 g. per 100 ml. and the albumin concentration about 3.0 g. per 100 ml., with a corresponding reduction in the gamma-globulin level. Treatment with a high-protein, starch-free diet resulted in clinical improvement, but the hypoproteinæmia persisted.

It was assumed that his alimentary function would improve on a gluten-free diet alone without fat or starch restriction, as in cœliac disease (Weijers and van de Kamer 1950, Anderson et al. 1952), but in view of the hypoproteinæmia, a high-protein diet was also prescribed. During the next four years (1952-56), however, the child's nutrition deteriorated progressively. He was stunted, with a retarded bone age, and his bones were poorly calcified with clinical and radiological signs of rickets. The severity of his alimentary symptoms and the degree of œdema and rickets, were variable. The serum-protein concentrations remained at about the same levels: total 3.0 g. and albumin 2.0 g. per 100 ml.

At the end of this time the patient was transferred to the care of one of us (W.F.Y.). Stricter dietary control of the alimentary disorder was introduced (easily assimilable foods to supply a high-calorie, high-protein, low-fat, and starch-free intake) and during the next two years (1956-58) his nutrition became normal with regular increments in weight and height. He no longer had œdema or ascites at any time. Evidence of malabsorption persisted (bulky stools and radiographic evidence of small-bowel dilatation), but he was able to tolerate a very high intake of calories and protein. Serial serum-protein levels, however, from 1956 to 1958 remained unchanged at about 3.0 g. total and 2.0 g. albumin per 100 ml., with gamma-globulin about 0.3 g. per 100 ml. Since adequate synthesis of skeletal protein was now apparent, the persistently low serum levels were unexpected.

Turnover studies using ^{131}I-labelled human serum-albumin (H.S.A.) (labelled by Dr. A. S. McFarlane at the National Institute of Medical Research, Mill Hill) were therefore carried out in 1957. The results showed that 67 % of the plasma content was being broken down daily (Fowler and Miles 1958), whereas the breakdown-rate in a normal subject is 8-10 % per day (Freeman and Matthews 1958). Moreover it is believed that this figure for normal breakdown applies also to children older than a few weeks. The dissociated ^{131}I appeared in the urine, except for about 5 % which was found in the fæces on the second day. Analysis of the fæces showed, however, that this fæcal ^{131}I was all free iodide, and did not therefore confirm a leakage of H.S.A. into the digestive tract. On the basis of his own observations (Gordon 1958), Gordon suggested that our patient should be tested with ^{131}I-labelled P.V.P., which he kindly provided.

At the time of the present investigations the patient was active and apparently well. The usual high-calorie, high-protein (about 100 g. per day), low-fat, and low-starch diet was given. He had no diarrhœa, but the stools were usually loose. His weight increased steadily from 30.5 kg. to 35 kg. during the 18 days of the investigation but no œdema or ascites was detected clinically.

Serum-protein concentrations estimated by the density-drop method were 3.1 g. per 100 ml. on the 5th, and 2.3 g. per 100 ml. on the 12th day of the investigation. His urine output varied between 180 and 1430 ml. per day, with an average of 667 ml. per day. It is possible, therefore, that the child was retaining water during a period of relative inactivity in hospital, but since the present test is a simple one not depending on the maintenance of an accurate "steady state", the interpretation of the results is not affected.

Method

The ^{131}I-labelled P.V.P. was prepared by Gordon and sent from America by air. On arrival, it was dialysed for 52 hours against normal saline at 4°C with a "Cellophane" membrane, because preliminary tests had shown that about 20 % was removable by dialysis.

The patient's thyroid was blocked by gr. 10 of sodium iodide given daily from 48 hours before administration of the tracer until the end of the test. An intravenous injection of 4.2μC was given on Jan. 9, 1959. All fæcal and urinary specimens were collected separately in 24-hour batches, and serial plasma specimens were also taken.

Urine was assayed in 10 ml. counting cups using a scintillation counter, and fæces were assayed in a ring-of-four Geiger-counter unit. The fæces were subsequently analysed in order to determine what proportion of the ^{131}I was attached to large (non-dialysable) molecules. The activity remaining in the body was measured each day with an eight-counter whole-body unit (Fowler 1957), to check that no specimens of excreta were lost.

Results

Whole-body radioactivity

The proportion of radioactive tracer remaining in the body fell to 77 % at three days, and thereafter decreased at the rate of about 1 % per day, as determined by urine collection and confirmed by the whole-body counter. An external scan to localise the radioactivity was carried out on the third day, and the counting-rate was found to be high over the region of the liver. It was not possible to correlate this counting-rate precisely with the amount of ^{131}I present, but the readings were consistent with the presence of three-quarters of the injected dose in the liver. No significant increase in counting-rate was found over the thyroid gland.

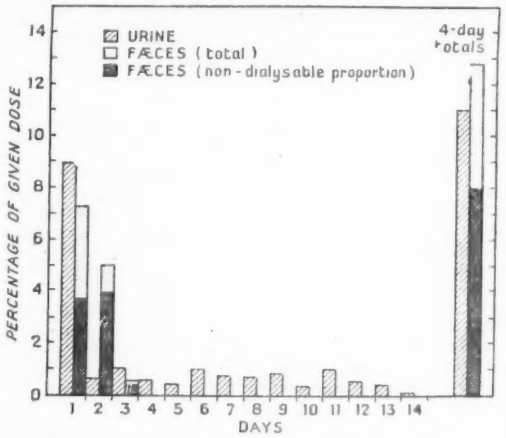
Excretion

Fæcal excretion on the first three days was about 7 %, 5 %, and 0.5 % of the given dose respectively (see table and figure). After the third day, fæcal radioactivity was not detectable—i.e., less than 0.1 % per day. The daily urine excretion fell from 9 % of the given dose on the first day to a steady level between 0.5 and 1 % per day for the remaining fourteen days of the test.

RESULTS OF TURNOVER TESTS USING ^{131}I-LABELLED P.V.P.

Day no.	Plasma specific activity (%)	Daily excretion		
		Urine (%)	Fæces (dialysable) (%)	Fæces (non-dialysable)
0	100	—	—	—
1	14.8	8.9	3.7	3.7
2	1.7	0.6	1.1	3.9
3	0.3	1.0	0.2	0.4
4	0	0.5	< 0.1	< 0.1
Cumulative totals		11.0	5.0	8.0

The cumulative fæcal excretion was 13 %, of which about two-thirds (8 %) was non-dialysable under the same conditions as described above for the original dialysis. The 8 % was therefore attached to large molecules. Of the remaining third, most was attached to small molecules of P.V.P., and a very small proportion (0.02 % of the injected dose) was precipitable as free iodide. The cumulative urine excretion over the first four days, while activity was appearing in the fæces, was 11 %.



Radioactive turnover test using ^{131}I-labelled P.V.P.

Specific Activity of the Plasma

Specific activity of the plasma decreased rapidly (see table), having a single exponential component of half-life 8.9 hr. (i.e., $\lambda = 1.89$ days $^{-1}$), and reached a negligibly low level on the third day.

Discussion

The amount of radioactivity appearing in the fæces (13 %) in this patient is much higher than in normal subjects, as in the other cases of "hypercatabolic" hypoprotenæmia which have been investigated with P.V.P. It is relatively high compared with the fæcal amounts in Schwartz and Jarnum's (1959) four patients and in all except one of Gordon's (1959) nine patients.

Quantitative interpretation is not possible because P.V.P. contains a large range of molecular weight. Nevertheless, the following comments may be made. If the radioactivity of each batch of fæces is expressed as a percentage of the total radioactivity in the plasma at the mean time of the collection period, the daily fæcal loss corresponds to a leakage of 23 %, 106 %, and 79 % for the first three days, an average of 70 % *per day of the amount in the plasma.* These figures include leakage of small as well as large molecules. An alternative assessment for large molecules only is obtained by taking (a) the non-dialysable fraction of the fæcal activity (61.5 %), and (b) the proportion of the injected tracer which remains in the body for a long period, together with that which appears as non-dialysable activity in the fæces (77+8 %). The average daily fæcal loss then appears to be about 50 % of the amount in the plasma.

These leakage-rates represent the limits between which the rate of protein breakdown would be expected to lie if the mechanism of hypoproteinæmia is, as suggested, leakage into the digestive tract and breakdown there. It can only be said that these rates are not inconsistent with the very high rate of breakdown of H.S.A. determined eighteen months previously, in the turnover test, which was 67 % per day of the amount of the plasma.

Conclusions and Comments

It is likely that the mechanism of this hypoproteinæmia is a leakage into the digestive tract, as found by Gordon (1959) and by Schwartz and Jarnum (1959) in other cases of "hypercatabolic" hypoproteinæmia. External counting confirmed that the liver was a main site of relatively permanent

deposition of the P.V.P. The use of P.V.P. with a smaller range of molecular weight would enable more precise comparisons to be made with the results of turnover studies using H.S.A., but even the P.V.P. available at present was found to provide a simple and highly significant test.

The comparatively high leakage in our case is paralleled by the severity and duration of intestinal malabsorption (shown clinically by persistent bulky stools and radiologically by the appearance of small bowel dilatation). Both the protein leakage and the malabsorption may be the result of damage to the bowel in early life, possibly by infection or by lack of food, associated with this child's poor social background. The child's present state is only maintained by the use of a highly selective diet, and his persistent hypoproteinæmia is likely to be a hazard to health in the future. The absence of œdema and ascites in the presence of such severe hypoproteinæmia is surprising, and may in part be due to the diuretic effect of metabolic products from the large amounts of protein in his diet.

The relation between the poor bowel function of this patient and that of patients with the classical cœliac and sprue syndromes remains a matter for conjecture, but further studies at an earlier stage of the disease might be helpful. Schwartz and Jarnum (1959) reported a patient aged 38 with sprue and hypoproteinæmia whose fæcal loss of P.V.P. was 8 % of the injected dose. Smaller amounts of protein leakage may occur in other cases, in which albumin synthesis is able to maintain the serum-albumin at normal levels.

We have pleasure in thanking Dr. Robert Gordon of Bethesda, Maryland, who suggested the test and provided the labelled P.V.P.; Dr M. J. Wilmers under whose care the patient was investigated in King's College Hospital; Dr. Kenneth Tallerman who referred this case of special interest to W.F.Y.; Dr. T. Freeman, of the National Institute of Medical Research, Mill Hill, for the dialysis measurements and for discussions; and Dr. I. H. Grant, Dr. P. R. Brass, and Mr. D. Pearson, for their help. The investigation was aided by the Research Fund of King's College Hospital and Medical School.

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"... The delinquent child has committed some offence against society: has stolen, for example, and been discovered. Not all children who steal are discovered and not all those who are discovered are charged and find their way to the juvenile court. It is obviously useful and meaningful, from the administrative point of view, to label the child who is convicted of theft at the juvenile court as a delinquent and the child who is referred to the doctor by his parents because he 'takes things' as neurotic, maladjusted or disturbed. The investigator might well conclude, however, that there were many factors in common in the two children and that they could usefully be regarded together as children in trouble"—JOHN PETERSON, *Children in Practice*, London : Cambridge University Press. 1959.

JEJUNAL DIVERTICULITIS WITH INTESTINAL OBSTRUCTION CAUSED BY FÆCOLITH

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DIVERTICULA of the upper jejunum do not as a rule cause serious trouble. This report describes how a jejunal diverticulum with an unusually wide neck caused high-intestinal obstruction, apparently by releasing a fæcolith into the lumen of the bowel.

Case-report

Miss A., aged 76, was admitted on the afternoon of Wednesday, Oct. 1, 1958, with vomiting and abdominal pain. A letter from Dr. J.B. Jack: "She had diarrhœa on Sunday. Monday off food. Vomiting from Monday evening to Tuesday morning repeatedly. She has been on fluids since, and mostly brought them back again. Bowels opened last night—not very adequately. Abdominal pain+. She has a palpable mass about an inch below the umbilicus and I think she must have a low obstruction of the bowel. ?Neoplasm. ?Torsion. ?Meckel. She suffers from pernicious anæmia and has 'Cytamen' injection once a month."

Examination

She was an ill, bright-eyed, elderly lady who complained of intermittent lower-abdominal pain. Temperature, 96.8° F; pulse-rate, 98 per min.; respirations, 30; blood-pressure, 170/97 mm. Hg. Abdominal examination showed diffuse tenderness, and a mass (the size of a small orange) 2.5 cm. below the umbilicus. There were no herniæ. Bowel sounds were increased and the rectum was empty and ballooned. A plain film of the abdomen showed multiple fluid levels in the small bowel. We diagnosed an acute small-bowel obstruction, although the cause was not obvious.

Operation

Laparotomy was perfomed that evening through a left lower paramedian incision. The first 2 metres of the jejunum showed multiple wide-mouthed diverticula, about the size of table-tennis balls, mostly on the mesenteric side. The largest was towards the distal end of the involved segment and showed obvious inflammation. It was about the size of a tangerine orange. About 30 cm. below the most distal diverticulum was a hard fæcolith, the size of an American golf-ball, which was completely obstructing the jejunum. Some of the other diverticula contained smaller fæcal lumps. A loop of ileum was adherent to the urinary bladder but separated easily. The segment containing the fæcolith and the biggest diverticulum was resected, and an end-to-end anastomosis made.

The patient made an excellent recovery, and went home on Oct. 13. She has remained perfectly well since.

Pathological Examination

The obstructing fæcolith fitted the largest jejunal diverticulum. Four diverticula were present at the antimesenteric border of the jejunum. They had relatively narrow necks and were filled with inspissated material. The largest, however, was 4 cm. in diameter and thick-walled.

Histologically the wall of the largest diverticulum was infiltrated by acute inflammatory cells, and there was ulceration of the mucosa. The smaller diverticula were thin-walled, with infiltration of the mucosa, but not of the muscle coat, by chronic inflammatory cells.

Discussion

The jejunum is the least common site of diverticula in the gastrointestinal tract. They are much larger than those of the colon, and their mouths may be 3-4 cm. in diameter (Wilkinson and Coffman 1948). They may produce no symptoms, or they may cause postprandial discomfort in the left upper abdomen, with belching, flatus, and borborygmi.

Complications are unusual, since the contents are usually fluid and sterile. Acute inflammation is the commonest, rarely leading to perforation, more often to adhesions. Often all the diverticula except one are healthy (Ovens 1943).

Acute small-bowel obstruction due to an enterolith in a patient with jejunal diverticulosis has been

reported only 11 times (Hellstrom 1936, Shaw 1941, Walker 1945, Goodall 1945, Armitage et al. 1950, Slater 1953, Burkitt 1957). Acute obstruction following extrusion and distal impaction of the fæcolith accounts for only 3 of these (Walker 1945, Slater 1953, Burkitt 1957). In Walker's case the concretion measured 6 × 4 × 3 cm.; in Slater's case it was 5×3 cm., and it impacted about 1.5 m. below the duodenojejunal flexure. In Burkitt's case many diverticula were present throughout the whole bowel, varying from thimble to golf-ball size. The extruded fæcolith was 6×3.5 cm. and it impacted in the lower ileum. All these patients were treated by enterotomy and simple removal of the concretion.

The pathogenesis of the condition is not known: although the necks of jejunal diverticula are wide enough to allow extrusion of a contained fæcolith, it is difficult to see how their thin walls are strong enough to extrude it (Walker 1945). In the case I have described, however, the wall of the inflamed diverticulum was thick enough to expel its content.

The differential diagnosis at laparotomy is acute regional jejunitis, with a palpable inflammatory tumour, Gendel and Beaver 1946).

Though local removal of the obstruction has given quite satisfactory results, this and other complications of jejunal diverticulosis are probably best treated by local resection and end-to-end anastomosis (Dennis and Brown 1943).

Summary

A fæcolith extruded from a jejunal diverticulum caused high-intestinal obstruction. This was successfully treated by resection of the affected segment.

I wish to thank Mr. W. G. Campbell for his permission to record the case and for his useful criticism.

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VICARIOUS MENSTRUATION
A LIKELY CASE
OF PULMONARY ENDOMETRIOSIS

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Endometriosis is occasionally found in extragenital situations, such as the large and small bowel (Colcock and Lamphier 1950), the bladder (Moss 1939, Dreyfuss 1940), the peritoneum, the pelvic and inguinal lymph-nodes, the umbilicus, and laparotomy scars (Lattes et al. 1956). Endometrial tissue has also been found in the kidney and in the limbs (Lattes et al. 1956).

This is an account of a patient who probably suffered from endometriosis of the lung. Only three cases of intrathoracic endometriosis have previously been described—one pulmonary (Lattes et al. 1956) and two pleural (Nicholson 1951, Büngeler and Fleury Silveira 1939).

Case-report

In October, 1957, a 39-year-old married nursing sister was seen because for the previous two years she had coughed blood when she had a menstrual period.

History

In 1942 and again in 1952 she had pneumonia unaccompanied by hæmoptysis. In 1952 her second child was delivered by cæsarean section because of cephalopelvic disproportion at the birth of her first child 5 years before. In 1954 she underwent a diagnostic curettage because of menorrhagia. In November, 1954, and again in January, 1955, she suffered for about 10 days from an undiagnosed illness, coincident with her menses, and consisting of fever, headache, and backache.

In August, 1955, during a game of tennis she coughed up about half a pint of blood; she was menstruating at the time. X-ray examination of the chest revealed an irregular area of infiltration in the upper lobe of the left lung, roughly an inch in diameter. This was regarded as tuberculous, despite a normal sedimentation-rate and the absence of tubercle bacilli from the sputum. She was admitted to hospital and treated for 2 months with streptomycin and *p*-aminosalicylic acid, gaining 15 lb. in weight. No evidence of the lesion was seen on a second X-ray film 3 weeks after admission.

Small hæmoptyses, coincident with her menses, recurred in the months after her discharge from hospital; but both bronchoscopy and bronchography were normal.

In February, 1957, she had another brisk hæmoptysis at the onset of a menstrual period, and on this occasion crepitations were heard over the upper lobe of the left lung. The blood-count, bleeding-time, and clotting-time were normal. A diagnosis of endometriosis of the lung was entertained and the patient was given 25 mg. of testosterone propionate a few days before the expected dates of her following four menstrual periods. With each of these the hæmoptysis recurred though in smaller amount. The testosterone was omitted in July; and the hæmoptysis that month was severe.

Recent Investigations

On examination in October, the patient was not distressed, though she coughed a considerable amount of bright red blood throughout the examination. She had no clubbing, cyanosis, dyspnœa, phlebothrombosis, or any other evidence of respiratory or cardiovascular disease. She was menstruating. The electrocardiogram and blood-count showed no abnormality. Radiographs of the chest (including tomograms) taken a few days later were normal; but when they were repeated the day before the expected date of her next menstrual period, a small area of infiltration was seen in the left upper lobe, at the same site as the lesion two years previously. It proved more extensive on tomography than on the plain film.

During the following 6 months the hæmoptyses diminished in severity, and by June, 1958, they had ceased. For this reason the lobectomy which had been envisaged was not carried out. A recent X-ray examination of the chest immediately before menstruation was normal; but tomographic studies were not done.

The menses have remained unchanged for the past four years, lasting 4-5 days with a fairly profuse flow and little if any dysmenorrhœa. No abnormality was found on gynæcological examination.

Discussion

Although histological proof is lacking, the fact that this patient's numerous hæmoptyses occurred only during menstruation strongly suggests endometriosis. Moreover, a pulmonary lesion was twice demonstrated radiologically at the onset of menstruation but was not seen at other times. Lattes et al. (1956) experienced similar diagnostic difficulties with their patient, until an X-ray examination early in pregnancy finally brought to light a small circumscribed mass in the middle lobe. On resection this proved to be endometrial tissue. Another striking similarity between the two cases is that, before the onset of the hæmoptyses, both patients had undergone caesarean section for cephalopelvic disproportion and curettage for menorrhagia. Either of these may have caused embolism of endometrial tissue to the lung—a hypothesis discussed by Lattes et al. (1956).

It is possible that the two initial febrile episodes in our patient were caused by bleeding from the pulmonary endometrium which had not yet established communication with the bronchi. The eventual cessation of the hæmoptyses despite continued normal menstruation, and the recent failure to

demonstrate the lesion radiologically, may be explained by gradual sequestration of the ectopic endometrium via the draining bronchus. Unfortunately we missed the opportunity to examine the sputum for endometrial cells.

Summary

For nearly three years a woman had numerous hæmoptyses in association with her menses but not at other times.

A transient lesion was demonstrated radiologically in the upper lobe of the left lung on two occasions—once during and once immediately before menstruation.

The diagnosis of pulmonary endometriosis appears extremely likely.

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ACUTE PHLEGMONOUS GASTRITIS IN A PATIENT WITH MYELOMATOSIS

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Acute phlegmonous gastritis is an uncommon condition with a reputation for high mortality; indeed, until recent years few cases survived. It was first described in a localised form by Andral in 1839. McAuley in 1922 reviewed the literature, and Starr and Wilson in 1957 collected 25 cases, including 2 of their own, occurring in the previous ten years. This brought the total reported up to 360. The death-rate in earlier series is indeed high. The case mortality reported in 1919 by Saundberg was 92% and in 1938 by Eliason 84%. More recently, however, only 48% of Starr and Wilson's (1957) series died. With the development of modern techniques and particularly the use of antibiotics and the correction of fluid and electrolyte balance, the mortality may be lowered further.

The common infecting organism is the hæmolytic streptococcus, and the recognised predisposing causes include gastritis, chronic ulcer, carcinoma, hypoacidity, and acute infections. The following case is of particular interest because the patient had myelomatosis.

Case-report

On May 2, 1958, Mr. A., aged 36, a coach-builder, was admitted to Queen Mary's Hospital with abdominal pain. This had started two days previously in the upper abdomen, and had gradually spread over the whole abdomen. It was now constant. He had vomited several times on the first day. There was no history of indigestion or previous abdominal pain. His bowels had remained regular.

He looked ill, pale, and dehydrated. The tongue was dry and furred. The temperature was 99.8°F, and the pulse-rate 120. There was tenderness and rigidity in the upper abdomen and guarding in the lower part. Bowel sounds were reduced and faint. There was nothing abnormal in the hernial orifices or on rectal examination. His hæmoglobin was 9.6 per 100ml., and his white-cell count 20,000 per c.mm. (90 % polymorphonuclear leucocytes).

From his history and examination a diagnosis of perforated peptic ulcer had been made, but in view of his pyrexia and leucocytosis a perforated appendix was also thought likely. At laparotomy half a pint of turbid fluid was aspirated from the abdominal cavity. There was no perforation or appendicitis, but the whole stomach from the cardia to the duodenum was inflamed and œdematous. Its serous surface was covered with flakes of fibrin. On grasping the stomach, pitting œdema was noted and the organ was estimated to be 4 cm. thick. The conditions was recognised as acute phlegmonous gastritis of the diffuse variety. No localised abcesses could be found in the stomach wall, and, as the condition was diffuse, no resection was carried out. The abdomen was closed with drainage to the region of the stomach and to the pelvis.

After operation the patient was allowed nothing by mouth but was maintained on intravenous glucose and saline solutions. He was given oxytetracycline intramuscularly 100 mg. three times daily. His condition slowly but steadily improved. On the third day after operation he started fluids by mouth, and by the fifth day the intravenous drip was discontinued.

Two weeks later a barium-meal examination was carried out to see whether any ulcer or scarring, hidden at operation by the gross œdema, was present. The appearances were entirely normal.

During his stay in hospital he had been found to have albuminuria. Moreover his hæmoglobin had failed to rise despite iron by mouth. Further investigation showed that hæmoglobin had now fallen to 8.4 per 100 ml., and the urine contained Bence Jones protein. Erythrocyte-sedimentation rate, 130 mm. in 1 hour; blood-urea, 31 mg. per 100 ml.; serum-albumin 1.5, and serum-globulin 12.5 g., per 100 ml.; zinc sulphate turbidity, 80 ml. per 100 ml.; formol gel test strongly positive with marked increase in gamma-globulin. Chest and skeletal radiography showed nothing abnormal.

A diagnosis of multiple myelomata was made and this was confirmed by sternal-marrow puncture. He was treated with blood-transfusion, iron by mouth, and uretinane.

He was discharged from hospital on June 12, 1958, and finally returned to work in November. He continues to have anæmia, but has had no further gastric symptoms.

Comment

This case of acute phlegmonous gastritis presented in a typical fashion and was misdiagnosed, as is usual, as a perforated peptic ulcer or appendix. Diagnosis can be very difficult. Occasionally the swollen stomach has been palpable as a mass in the epigastrium. In 1934 Jennings Marshall reported a case following pneumonia in which a correct diagnosis was made when the patient produced a reddish jelly-like vomitus.

The gastritis may be diffuse, as in the above case, or may be localised—usually to the distal part of the stomach. Until recently all treatment was fraught with great danger. Indeed, both Cutler (1940) and Miller and Nushan (1952) advise against any form of operation. Nevertheless in the localised form partial gastrectomy and a course of antibiotics (Starr and Wilson 1957) is probably the present-day treatment of choice. In the diffuse variety the difficulties are greater. Resection would necessitate a total gastrectomy, and this would carry a high mortality as an emergency procedure in an ill patient. Hence it is probably better to rely on antibiotics and the drainage of any abscess which may be present.

The association, in this palient, of phlegmonous gastritis and multiple myelomata may not be entirely fortuitous. Although the patient would admit to no symptoms before his acute illness, his hæmoglobin on admission was only 9.6g. per 100 ml., and debility from this may have been sufficient to permit infection. Thus the myelomatosis may have been a predisposing cause.

Summary

At laparotomy a patient with abdominal pain of two days' duration was found to have diffuse phlegmonous gastritis. He improved steadily with parenteral fluids and antibiotics.

He also had anaemia and proteinuria, which were shown to be due to myelomatosis.

I wish to thank Mr. Roy Parkinson for permission to publish this case.

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Preliminary Communications

SERUM QUININE OXIDASE

A SPECIFIC TEST FOR PARENCHYMATOUS LIVER DAMAGE

GROSSER [1] in 1907 observed that for therapeutic purposes quinine must be given in frequent doses, because it is destroyed in the liver. Führ and Kaczmarczyk [2] in 1955 isolated an enzyme from rabbit liver which oxidised quinine and which they considered responsible for this destruction, assuming that its natural substrate was N-methyl nicotinic acid amide. They found minute quantities also in rabbit lung. Knox [3] thought this enzyme might be identical with the well-known aldehyde oxidase, a flavine enzyme which also occurs in liver. Lang and Keuer [4], and Baier and Lang [5], examined this enzyme further and found that it was specific for the oxidation of the pyridine nucleus which occurs in N-methyl nicotinic acid amide and quinine, oxidising the pyridine nucleus in the 2-position to the equivalent hydroxy compound (carbostyril), making it unlikely to be a flavine enzyme. These authors found it in rabbit, and to a lesser amount in cattle livers. Baier[6] also found quinine oxidase in the serum of patients with liver disease.

It was thought that the estimation of quinine oxidase in serum might be utilised as an easy and reliable biochemical test for parenchymatous liver damage, since we are dealing here with an enzyme which is apparently specific for the liver.

So far only rabbit organs and human blood have been examined and the enzyme found in large amounts in rabbit liver and less in rabbit spleen. None was found in the pancreas, kidney, heart, and skeletal muscle of rabbits. Negligible amounts were present in normal human serum, but small amounts in human blood-cells. The enzyme can easily be determined by its action on quinine [4-6], by the colorimetric estimation of the quinine as distinct from the absorption maximum of quinine carbostyril which has an absorption maximum at 352 mμ as distinct from the maximum of quinine at 332 mμ.

Quinine oxidase was determined in serum in the following way:

1 ml. serum is mixed with 3 ml. 0.06 molar phosphate buffer of pH = 7.2, to which 1 ml. quinine solution (25 mg. quinine hydrochloride in 100 ml. of water) is added and the extinction of this mixture determined in the 'Unicam SP' 500 spectrophotometer in a 1 cm. glass cuvette at 366 mμ exactly one minute after mixing. (At 366 mμ there is practically no more absorption of quinine, so that only carbostyril colour is measured.) After ten minutes standing at room temperature (20°C.) the reading is repeated at the same wavelength, the increase in optical density being proportional to the amount of quinine carbostyril formed. Following Baier [6] we regard as 1 unit of quinine oxidase that amount which causes an increase in optical density by 0.001 under the conditions stated.

The measurement of optical density at the same wavelength before and after incubation excludes the necessity for a blank or standard, and also excludes interference from any other chromogens in the serum. Accurate readings can be obtained for 5 or more units of quinine oxidase per millilitre of serum, provided that the serum is not significantly jaundiced or hæmolysed. Less than 5 units per ml. can hardly be detected, and in very jaundiced or hæmolysed sera only high quinine oxidase concentrations can be detected by this method. In such cases, as for the determination of quinine oxidase in cell and organ extracts, a more complicated procedure of enzyme extraction, precipitation, and estimation must be followed. Details of this method, which hardly differs from the methods employed by the previous authors, and the results obtained in these experiments, will be described elsewhere.

To the present, quinine oxidase has been determined in 60 normal sera (including 5 sera of women in varying stages of pregnancy), as well as in 20 cases of myocardial infarction, 7 cases of pancreatitis, and 20 cases of biliary obstruction. In all these there were less than 5 units of quinine oxidase per millilitre of serum. Only in 1 case of pancreatitis with slight liver involvement 7 units of quinine oxidase was found. In 48 cases of infective hepatitis so far examined the quinine oxidase has varied between 7 and 89 units. It is difficult to obtain sera from patients with infective hepatitis immediately after the onset of the disease, but in 1 case we were able to estimate the quinine oxidase three days after the start of symptoms when it was found to be 14 units per ml. of serum. In 1 case of toxic hepatitis a value of 25 units of quinine oxidase was found, and this dropped to 12 units after one week with clinical improvement. In general, the milder the clinical symptoms the lower the level of quinine oxidase. Of the 20 cases of hepatic cirrhosis, raised values of up to 20 units were found in 3 cases with continuing active destruction of liver tissue, while the values found in all other cases were below 5 units.

It appears, therefore, that the estimation of quinine oxidase in serum is an easily performed and specific test for the detection of parenchymatous liver damage. It is thus of value not only in differentiating between toxic, or viral hepatitis and obstructive jaundice; but also in the diagnosis of infective hepatitis in cases of general malaise, and as an indication of active parenchymatous liver damage when other tests are inconclusive.

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Reviews of Books

Pathology of Tumours of the Nervous System

DOROTHY S. RUSSELL, SC.D., M.D., F.R.C.P., professor of morbid anatomy, University of London, and director of the Bernhard Baron Institute of Pathology, The London Hospital; L. J. RUBINSTEIN, M.D., lecturer in morbid anatomy, London Hospital Medical College, London: Edward Arnold. 1959. Pp. 318. 70*s*.

THIS book is a landmark in the pathology of intracranial tumours, the serious study of which may be said to date from the classical work of Bailey and Cushing on gliomas in 1926. Since then there has been a welter of publications and a commendable endeavour, perhaps with the interests of the neurosurgeon at heart, to simplify classification; but few authors have been competent enough to attempt a major review of the whole subject. This work is therefore of considerable importance, since it embodies not only an unparalleled experience of biopsy and necropsy work, of tissue culture, and of the experimental approach, but also the extensive and meticulous records of The London Hospital as far back as 1908. Indeed, care and thought have made this joint publication a model of skilful presentation and precise reasoning.

Pathologists and neurosurgeons, who have long awaited this book, will not be disappointed. They will find the highly critical yet basically conservative approach stimulating; some may even find it provocative, but no-one will fail to benefit by the detail provided, the careful assessment of prognosis, and, for those who find the subject confusing, the clarity of the exposition. Professor Russell and Dr. Rubinstein have carefully defined the frontiers of present ignorance and indicated the lines along which future work should proceed. Of special interest is a section by Prof. C. E. Lumsden embodying his recent experiences with the tissue culture of tumours.

The production of this volume, like that of Greenfield's *Neuropathology*, to which it is designed as a companion, is admirable and the illustrations have been carefully selected. This absorbing textbook seems assured of a place among the classics of medicine.

THE LANCET

LONDON 8 AUGUST 1959

Abdominal Decompression in Labour

THE obstetric forceps introduced by the CHAMBERLEN family over two centuries ago provided a means of shortening the second stage of labour. But despite many other advances in obstetrics, no effective way of shortening the first stage has been devised. Now, with an entirely new technique involving reduction in atmospheric pressure on the abdomen, Professor HEYNS [1-2] of Johannesburg, seems to have achieved a degree of control beyond anything yet known.

As with many important advances, the initial observation was accidental. During an investigation into the source of electrical potential in labour, the abdominal muscles were paralysed with suxamethonium while continuous records were made. Labour progressed surprisingly fast, and similar expedition was shown by a second patient similarly studied. HEYNS came to the conclusion that the uterus was working more efficiently because it had been freed from constriction by the relatively tense abdominal wall; it had been able to approach a mechanically favourable spheroid shape without wasting energy on overcoming the resistance of abdominal muscles. Consideration of alternative ways of relaxing these muscles suggested that reduction of atmospheric pressure on the abdomen ("decompression") was likely to be the most practical and safest. Initial tests in a decompression chamber showed that pressure could be lowered substantially without undue discomfort, and equipment was then developed and tried on parturient women. Of 100 primigravidæ in whom decompression was started early in labour (in no case later than two fingers' dilatation of the cervix), 50 reached full dilatation in less than five hours, and 68 were delivered in less than seven hours, from the start of decompression. Still better results were obtained during the three months last autumn when improved apparatus was being used; 72 % of patients were delivered within five hours of starting decompression.

From the patient's point of view an even more striking result was the relief of pain, especially of backache; and the evidence of patients was the more convincing because they were able to compare successive contractions with and without decompression. Any mild respiratory discomfort due to the temporary loss of diaphragmatic and lower-costal movement during decompression was greatly outweighed by the relief of pain. The persistent cramp-like backache often experienced during labour is generally thought to be related to high uterine tone, and indeed is a diagnostic feature of abnormal labour of hypertonic type. Relief of this pain suggests that the maximum intra-amniotic pressure achieved during contraction is reduced by decompression to a level below that which causes pain. If this is true, the danger of intrauterine anoxia should be less; and HEYNS reports that fœtal distress was not seen in any of his patients. The tendency in treated cases for the membranes to rupture late in labour also indicates lower intrauterine pressures. To determine how the pressures change in the amniotic sac, with and without decompression, should be relatively simple, by any of the standard techniques.

Another way in which lessening of abdominal constriction may assist labour is that it gives the uterus more freedom to adjust its axis and improve the direction of the fœtal head towards the pelvic brim. This could be an advantage in many cases where the fœtus is in the posterior position, or where there is a high angle of inclination of the pelvic brim, and the axis of the inlet is therefore so divergent from the axis of the uterus that much energy is wasted in forcing the presenting part against the symphysis pubis. In the semi-reclining position in which these patients use the apparatus, flexion of the hips will also assist in making the axes of inlet and uterus more nearly parallel. In addition to these mechanical factors, the character of the contractions was improved by decompression, an increase in their frequency, strength, and duration being noted. A number of desultory labours became rapidly progressive after the start of treatment. Among the case-histories which HEYNS reports in detail is that of a primigravida aged 25 who had only 24 contractions during ninety minutes' decompression; in this time the cervix advanced from one finger to full dilatation.

The equipment comprises a special semi-reclining chair, a plastic airtight suit, a rigid "spacer" to determine the area subjected to decompression, and a pump. The patient sits in the chair, on which the suit is laid open, and the "spacer", like a modified bed cradle, is placed over the abdomen. The suit is then closed over the spacer so that the patient is as though in a sleeping-bag fitting snugly round the thorax below the axillæ. With her finger on an air-inlet valve leading to the suction pump, the patient controls the reduction of pressure within the suit: in operation the device is comparable with the familiar gas-and-air machine in that the patient closes the valve at the onset of a contraction and releases it as the pain passes off. Access to the abdomen, for auscultation of the fœtal heart and observation of progress, is obtained by means of a 'Zipp' fastener down the front of the suit. Decompression is ended when the second stage begins, and the patient is then transferred to a labour ward for delivery in the ordinary way. HEYNS, however, has also observed the effect of applying decompression to the pelvic outlet by sitting the patient on a "decompression chamber" during the second and third stages. He reports that the fœtus can be expelled by primary uterine forces alone without the need for bearing down, and that the placenta can be delivered without abdominal palpation of the uterine fundus.

The consequences of this discovery could be far-reaching. The device is simple in principle, emin-

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ently safe for both mother and child, and, properly developed, should not be too complex or costly to be used by any obstetric unit which is adequately staffed. If it fulfils its early promise it will allow us to shorten labour, reduce pain, and perhaps lower intra-amniotic pressure. This could be a valuable aid in the management of fœtal distress or of a labour in which the fœtus is at greater than normal risk.

Operation for the Gallstones

CHOLECYSTOSTOMY has been surgical anathema for so many years that, even if it had no intrinsic merits, cynics might predict its imminent rediscovery. Together with some other historic operations for gallstones, it is certainly due for reassessment. ROSS and DUNPHY [1], two of its exponents, described it some years ago as "an unwanted stepchild in the family of operations (whose) presence is recognised but whose legitimacy is suspect"—an accurate enough rendering of surgical opinion but possibly misleading in its implication of youth. Cholecystostomy is nearly a hundred years old. As SPARKMAN recently recalled [2], THUDICHUM suggested in 1858 that severe gallstone disease might be relieved by attaching the fundus of the gallbladder to the peritoneum at a first operation and removing the stones at a second [3]; and BOBBS of Indianapolis actually opened the gallbladder ten years later under the impression that he was incising a large ovarian cyst [4]. Other pioneers—KOCHER, SIMS, and KEEN among them [5-7]—explored its potentialities and pitfalls and established it as a planned procedure: they recognised that, though it rarely afforded complete and lasting relief, it had at least a commendably low mortality. Its decline came with the advent of cholecystectomy: thought never wholly eclipsed, cholecystostomy soon became one of those operations which well-bred surgeons might have to perform but would not talk about. Some, it is true, continued to extol its virtues for poor-risk patients [8-15]; but in the eyes of the majority it became a symbol of the poor-risk surgeon, an admission of operative inexperience at its best, and of diagnostic blunder at its worst. Few surgical registrars, boldly tackling an acute cholecystitis, have not found it on occasions a last line of safe retreat; but such retreats, while undoubtedly saving lives, enhanced neither their own nor the operation's reputation.

There will always be a place for second-thought operations for patients who should never have been operated on in the first place; but cholecystostomy has other, more generally recognised, indications. It is the best treatment in many injuries to the gallbladder and bile-ducts, even without or before actual rupture; in fulminating cholecystitis progressing to gangrene, perforation, and general peritonitis; and in a diminishing number of patients who must be judged too ill to withstand cholecystectomy but who are yet in urgent need of biliary decompression. This last group includes the occasional acute cholecystitis complicating convalescence from some other operation [16-17]. The value of cholecystostomy is less firmly established in acute pancreatitis; and whether old age alone is a valid indication is debatable. In all these groups, however, cholecystostomy has always retained its usefulness; and SPARKMAN [2] has done well to set out its advantages against its often elaborated and more-or-less obvious drawbacks.

Cholecystostomy is, above all, a simple operation; and though (like most simple operations) it may be exceedingly difficult to perform well, it is usually within the competence of relatively inexperienced surgeons. If need be, it can be performed under local anæsthesia. It provides "prompt effective decompression" of the biliary tract, "thereby relieving the immediate attack and circumventing gangrene, rupture, and peritonitis"; and, if stones have entered the common bile-duct, "it relieves or prevents the development of obstructive jaundice or cholangitis and obviates the necessity for exploration of the choledochus at a difficult time" [2]. The citation sounds almost too good: and it is as well to add a few provisos. The operation relieves obstruction only when the obstructing agent is removed: and this may not be easy. A calculus impacted in Hartmann's pouch, or ulcerating through it, may resist many gentle and repeated not-so-gentle attemps to dislodge it; and downright violence is apt to end in disaster. With many small calculi, on the other hand, it may be hard to ensure that all have been retrieved; and if one has already blocked the cystic duct, the operation will not, of course, relieve common-duct obstruction. Several other rare indications or remote advantages could be added to SPARKMAN'S useful list: cholecystostomy, for example, preserves what is by far the easiest route for palliative decompression, should the patient ever have malignant common-duct obstruction.

Useful as it may be to bear in mind these advantages of cholecystostomy (and one could enlarge too on the similar merits of partial cholecystectomy [18]), they apply only to a tiny minority of gallstone patients. Over the majority, cholcystectomy has held sway for so long that even to mention an operation such as cholecystolithotomy as an alternative may seem anachronistic. So long as gallstone disease is interpreted as the texbook entity of longstanding cholecystitis, punctuated as a rule by acute episodes of colic or obstruction, there is little to be said for anything less than complete removal of the offending viscus. But this may not be the only true interpretation. Some years ago we suggested that the gallbladder that is very easy to remove is usually not worth removing [19]; and many patients could still testify that the functioning gallbladder has a definite part to play in maintaining physical wellbeing. The postcholecystectomy syndrome is clearly not a myth, even

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though its victims tend to drift away from hospitals and even though accounts of relief measures seem quickly to acquire a mythological ring. With the moral rehabilitation of the functioning gallbladder, however, came the gradual realisation, even among conservative physicians, that gallstones causing symptoms should be removed; and the sooner the better [20-21]. Indeed, most doctors now admit (though many in tones of no enthusiasm) that *theoretically* all gallstones should be operated on, irrespective of symptoms. In practice both the family doctor and the patient are often loth to turn to cholecystectomy. The operation still has a considerable morbidity (its deathrate in this country is probably less than 2 %); and in some respects the best that can be said for it is "that though it has failures,, medical treatmant has more" [22]. HUNT estimated that prospects of lasting relief of proved gallstones "is probably not higher than 75 % whatever treatment is advised" [22].

Fears of the postcholecystectomy syndrome on the one hand and of recurrent attacks of cholecystitis on the other can be reconciled when it comes to management of the patient, so long as calculi are treated as magic therapeutic touchstones. For many years surgeons and physicians have equated gallstones with lack of gallbladder functions—a convenient notion, since whereas stones stood for operation, non-function guaranteed against unpleasant after-effects. It may be time, however, to take notice of a large group of patients, demonstrated by advancing radiological technique, to whom this rule-of-thumb does not apply. The patients seem to have one or a few "acute" stones in otherwise well-functioning gallbladders presumably the products of some recent and transient disturbance in the composition of bile rather than of langstanding gallbladder dysfunction. Since we do not how gallstones (or any stones for that matter) are formed in the body, we are here in the realm of inverted commas; but the more negative shadows we can detect by X-rays, and the bolder we get in recommending operation irrespective of symptoms, the harder pathologists have to look for signs of "chronic inflammation", or of any other disease, in the gallbladders surgeons remove.

If sometimes pyelolithotomy is preferrable to nephrectomy, why not cholecystolithotomy to cholecystectomy? Part of the answer is that, though the choice of operation for renal calculi is dictated largely by the preciousness of functioning renal tissue, most surgeons assume that patients will gladly surrender their gallbladders in exchange for the certainty that they will have no gallbladder trouble in the future. It is true, of course, that a patient without a gallbladder cannot develop stones in it, though be may breed far more troublesome ones in his bileducts, and it is very probable that, once the gallbladder has ceased to function, it will prove a good riddance. But the question remains: how serious is the risk of new stones forming in an apparently normal and still well-functioning organ after one set of recent stones has been removed? Many of the symptoms which we now attribute to gallstones may be more properly ascribed to lack of gallbladder function; and it seems absurd to try to relieve them by removing both stones and gallbladder. If all gallstones do in fact need removing (and they are certainly safer out than in) is not the loss of all gallbladders which contain them an excessive price for safety?

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Porphyria in South Africa

ALTHOUGH the porphyrias are of world-wide distribution, they are considered uncommon diseases. There is no doubt about the rarity of congenital porphyria, a disease probably inherited as a recessive trait, in which abnormal sensitivity to light, and the excretion of uroporphyrin I, are usually present from birth. SCHMID et al. [1] traced only 34 authenticated cases in 1955, since when two further cases in Sudanese siblings have been reported [2]. Acute intermittent porphyria has been regarded as the least uncommon of the porphyria group. It is inherited as a mendelian dominant trait with variable clinical penetrance; the patient's urine contains much porphobilinogen and δ-aminolævulic acid, the precursors of the porphyrins; and the main clinical features are pain, chiefly in the abomen, and neuropsychiatric manifestations [3]. WALDENSTRÖM [4] has suggested a frequency of 1.5 per 100,000 inhabitants of Sweden, though the rate was far higher (1 per 1000) in Lapland, where he found a large family with 137 cases. SAINT et al. [5] in Australia put the frequency at 1.5 per 100,000 adult females. Although many cases have been collected in the U.S.A. [6] and in Great Britain [3], the prevalence in these countries has not been estimated.

There has been much controversy over porphyria cutanea tarda, and its general frequency is unknown. WALDENSTRÖM [4], believing that his original concept of this group required revision, has defined two types: (a) porphyria cutanea tarda symptomatica, and (b) porphyria cutanea tarda hereditaria or protocoproporphyria. In the former, photosensitisation usually occurs in adult life through non-hereditary mechanisms—e.g., alcoholic cirrhosis or (very rarely) a porphyrin-producing hepatic adenoma [7]—and uroporphyrin and coproporphyrin are excreted in the urine. In the latter, photosensitisation occurs in youngish persons, and there are sometimes acute attacks resembling those of acute intermittent porphyria. The condition is transmitted as a mendelian dominant trait [8]. RIMINGTON has demonstrated reciprocity in the excretion of porphyrins of this group: in remission increased quantities of protoporphyrin and coproporphyrin are often excreted only in the faeces, whereas during an active phase of photosensitivity the urinary porphyrins may be increased considerably but the fæcal porphyrins not so much. In his tentative classification WALDENSTRÖM does not include mixed porphyria [6], and he thinks that acute intermittent porphyria remains true to type and entirely separate from the cutaneous porphyrias.

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In the past decade reports have come from South Africa which suggest that the prevalence of porphyria there is the highest in the world. Of the two types, one is seen in the white population while the other is confined to the Bantus—a remarkable example of intracellular apartheid. DEAN [9] has diagnosed 564 cases of porphyria in 54 family groups from European stock and he holds that all these patients are descendants of a Dutch settler—a porphyric—who married at the Cape in 1688. Furthermore, after investigating the urines and fæces of 1253 whites, DEAN and BARNES [9] found 15 porphyrics, a frequency of 1 %. This type of porphyria in white South Africans is apparently inherited as a mendelian dominant character. Acute attacks, similar to these of acute intermittent porphyria, are commonest in affected females, whereas light sensitivity is usually found in male members of the same family and may be very slight or absent in the females. DEAN and BARNES [10] have now compared the porphyrin excretion of these patients with that of a group of Swedish patients from WALDENSTRÖM'S series of acute intermittent porphyria. In white South African porphyria they find a high fæcal porphyrin during remission, with an increase in urinary porphyrin, porphobilinogen, and δ-aminolævulic acid during the acute phases of the disease. In the Swedish type, contrary to the observation of SCHMID et al. [11], the fæcal porphyrin remains normal during remission. There has been some confusion over the relation of white South African porphyria to the other porphyrias, and a new title (variegate porphyria) has been coined. But this seems a needless complication if, as we think, the condition can be fitted genetically, clinically, and biochemically into the group porphyria cutanea tarda hereditaria (protocoproporphyria). Of the porphyria seen in Bantus light sensitivity is almost the only manifestation. The great majority of patients are adults in towns; there is inconclusive evidence of a hereditary factor; and the condition may be related to the hepatic effect of adulterated drinks. The urine usually contains excessive quantities of porphyrins and occasionally increased amounts of porphobilinogen and δ-aminolævulic acid, but the fæcal porphyrins are not significantly increased [12]. Thus the Bantu porphyria, of which hundreds of cases have already been found, may be readily assigned to the group porphyria cutanea tarda symptomatica.

These studies in South Africa will no doubt encourage attempts to determine the true prevalence of the porphyria diseases in other parts of the world.

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Annotations

FIRST DECADE OF N.H.S.

THE report of the Ministry of Health for 1958 [1] is largely concerned with the development of the National Health Service in its first ten years. In his foreword, Mr. Derek Walker-Smith, the Minister of Health, insists that the record of the N.H.S. must be judged in the light of contemporary circumstances: the proportion of the national resources to be devoted to the service at any particular time must be decided by the Government of the day. Under the pressure of economic stringency great progress has been made in using resources effectively. Thus in the hospitals a million more inpatients were treated in 1958 than ten years before —an increase of over 30 %, whereas the available beds had increased by little more than 6 %. Likewise the number of visits by home nurses was 41 % greater in 1958 than in 1949, although the number of nurses had risen by only 20 % ; and, although the number of dentists had grown by only 8%, the total number of courses of treatment had increased by 46 % and courses of conservative treatment by 102 %. The increasing cost of the service during these ten years was mainly due to inflation : some 70 % of the increase was accounted for by higher prices and higher remuneration.

Looking to the future, the Minister declares:

"The battle for health must be fought more and more in the community, with the family doctor as the leader of the clinical team and the local health authority supporting him... In this battle the hospitals will first bring reinforcement to the family doctor by the facilities, diagnostic aids and consultant services they provide, and then, if necessary, will constitute the last line of defence, treating the casualties and rehabilitating them to enable their speedy return to active life."

1. Report of the Ministry of Health for the Year ended Dec. 31, 1958. Part I. 1. The National Health Service. 2. Welfare, Food and Drugs, Civil Defence. Cmnd. 806. H.M. Stationery Office. 1959. Pp. 365. 15*s.* 6*d.*

TOP BRANCHES OF THE VASCULAR TREE

THE causes of cerebrovascular disease have been less closely studied than those of other types of cardiovascular disease, particularly insufficiency of the coronary arteries, and it cannot be assumed that the two sets of predisposing factors are identical. Indeed there is some statistical evidence that they are not, for while deaths from cardiovascular disease have increased since the war in certain groups of patients, those due to cerebrovascular disease have not shown anything like a corresponding increase in the same group. Interpretation is made difficult because some statistical records showing this trend demonstrated a fall in both types of disease during the last war. Ustvedt[1] carefully analysed the apparent changes in Norway, but he was unable to reach a dogmatic conclusion about their causes. In the age-group 40-59 years, both sexes show a declining death-rate for cardiovascular-renal disease from 1920 to 1945. In males the decline accelerated during the war, but after the war the death-rate for men showed an immediate steep rise, whereas the rate for females remained steady at its wartime low level. Fatal cerebrovascular lesions in females remained at a stable level from 1927 to 1939, while there was a slight decrease in males during the same period. During the war years the rate for females fell steeply while the male rate fell slightly more quickly than before the war. After the war the rate for both females and males increased only slightly. Interpretation of these Norwegian figures is complicated because changes in lists of nomenclature have cast doubt on the strict correspondence of groups from different periods. Although Ustvedt concludes that the figures he derives show "real" trends some doubt must remain on this point. It is unlikely, however, to account for such a big discrepancy as appears in the rates between the two sexes. Similarly the interaction of multiple causes of death in diffuse disease of the vascular system is unlikely to react selectively on one sex rather than the other.

1. Ustvedt, H. J. *Acta med. scand.* 1959, **163**, 305.

Of the exogenous influences that may be involved, changes in food are likely to affect both sexes, but smoking is more common in Norwegian males. No difference in physical or mental stress was demonstrated. Even if all are subject to the same external factors, females may be protected against the consequences of these by some endogencular-renal disease. Such external factors themselves seem to act on cardiovascular-renal disease, even in males ousdifferen.ce, which applies only to cardiouas. Of great importance in cerebrovascular disease is atheromatosis, though no thrombosis of the vessel is demonstrated in more than half the cases with actual cerebral infarction. Temporarily lowered blood-pressure or anæmia may contribute to symptoms and even to infarction[2-3], as may cardiac insufficiency[4]. Embolism accounts for comparatively few cerebrovascular accidents, and the significance of spasm of cerebral vessels (in the absence of other local lesion) remains debatable.

Both cardiovascular-renal and cerebrovascular disease in Norway declined during the war. A commoп factor ust therefore be soughtperhaps the lowering of blood-pressure[5]. Another explanation of the declines before and during the war might be a continued fall in rheumatic heart-disease, though this explanation seems unlikely to explain completely the decrease in cerebrovascular disease. The discrepancy after the war might be due to different latent periods in the action of exogenous factors on cerebral and cardiac vascular disease. Atheromatosis may develop more slowly in cerebral than in myocardial vessels but this has not been demonstrated.

This discrepancy between rates for heart-disease and vascular lesions of the nervous system has been found elsewhere, for example, in Scotland and in America, where the war had no apparent effect on cerebrovascular disease nor, in the United States, on cardiovascular disease, which makes the fall in Norway even more interesting.

In a study of the prognosis in cerebral thrombosis Robinson et al[6] found that the initial attack was fatal in 21 % of 1018 cases. Of the survivors 50 % died within 4.1 years (as compared with 18 % of a comparable sample of the general population), recurrent vascular disease accounting for 85 % of the deaths. Severe initial attacks, early recurrence, and congestive cardiac failure, indicated a poor prognosis. There were no important differences in the incidence of coronary disease, diabetes mellitus, or hypertension between those who survived and those who died in the first attack.

Clearly much more attention must be paid to analysis of factors contributing to cerebrovascular disease as distinct from cardiovascular disease in general. The fact that the causes of both are at present obscure need be no deterrent to clear thinking during the period of elucidation : indeed it is an inducement to eschew prejudice. It is a commonplace that vascular disease may ravage the brain or the heart in one individual to different degrees. It may not be surprising that statistics reflect this fact : perhaps they may even one day explain it.

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PUERPERAL SEPSIS

DEATHS from puerperal sepsis are now very uncommon: there have been none in the past ten years in two London hospitals where, in the early thirties, it was responsible for a maternal mortality of 1 in 1000. The most obvious reasons are the introduction of sulphonamides in 1936, penicillin in 1945, and other antibiotics since then. Their chief effect was to remove the killing power of the Lancefield group-A streptococcus, which had been responsible for 75 % of deaths from puerperal sepsis. But there were other causes for the improvement. Colebrook and Kenny [1], for example, showed that in one London hospital the fatality-rate from puerperal sepsis due to this organism fell from 25 % to 5 % in the three years before sulphonamides were brought into use. This may have been partly the result of a decrease in the virulence of the organism, but an important cause was the researches into the behaviour of streptococci and into air hygiene in general. As Gibberd has said [2], "This new knowledge and its practical application produced, in the best departments, a standard of organisation and bacteriological control that is not always seen in these carefree (or careless) days of antibiotics". In the same way, there was a fall in the mortality from infection due to organisms which were not affected by the sulphonamides, before the introduction of penicillin. These bacteria (anærobic and non-hæmolytic streptococci, *Clostridium welchii*, and *Escherichia coli*) may all be present in the normal vagina in the puerperium and become invasive only in the presence of devitalised tissue. The decrease in the incidence of puerperal infection by these organisms is, in Gibberd's opinion, due to improvements in obstetric technique. Deliveries are less traumatic than they were twenty years ago and special attention is now paid to the danger of such procedures as instrumental induction of labour when the fœtus is dead.

The fall in mortality from puerperal sepsis is thus attributable to real advances in preventive methods, both bacteriological and obstetric, and to the use of antibacterial substances. These substances do not prevent the spread of potentially dangerous organisms round a maternity unit, although they decrease the severity of the disease. Indeed, virulent group-A streptococci were shown to have spread widely in maternity hospitals [3-6], and there is also the present-day plague of the antibiotic-resistant staphylococcus. The staphylococcus used to be much less dangerous than the streptococcus, but now our hospitals contain strains which are highly virulent and fully invasive. Hare and Ridley [7] showed that the perineum is, in the male, a not uncommon site for symptomless carriage of *Staphylococcus aureus*. Although the comparable carriage-rate in the female has not been recorded, it seems likely that this organism cannot be far from the birth canal of women confined in hospital. In 1951 Calman and Gibson [8] found that 16.5 % genital-tract infections were caused by *Staph. aureus*: more up-to-date figures are not available. It may be that conditions in the uterus after a normal confinement are not suitable for the growth of this organism; but if *Staph. aureus* is not responsible for an increasing amount of puerperal uterine infection, the reason does not lie in its scarcity in the environment.

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Special Articles

EXCHANGE OF PATIENTS BY MENTAL HOSPITALS

A Therapeutic Holiday

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On a morning in May a motor coach left each of our hospitals with 20 patients and 5 nurses. At the midway point they stopped for lunch, exchanged passengers, and returned to their starting-point. The result was that the nurses and patients spent a little over two weeks in a strange hospital with a culture and a countryside differing considerably from their own.

The patients chosen had been in hospital for a long time and their chances of recovery were not good. The average age of De la Pole's patients was thirty-eight, and the average stay in hospital on their present admission was twelve years. They were all schizophrenics and their psychiatric state can perhaps be best described by saying that only 1 could start a conversation, only 6 could be trusted on visiting a strange town to go for a walk and find their own way back, and all required surveillance to see that they cared adequately for their person and their dress. The 2 charge nurses of the ward accompanied them, and 3 student nurses were chosen from those who volunteered.

Ailsa's patients were predominantly schizophrenics whit an average stay of fourteen years, and 3 inadequate psychopaths and 1 manic-depressive with an average stay of six months. They were accompanied by a charge nurse and 4 staff nurses.

THE HOLIDAY

At De la Pole it had been intended that the Ailsa patients should fall into the routine followed by the patients who had gone to Scotland. It was immediately clear, however, the the patients from Scotland were on the whole rather "better" than those from the East Riding, and a fresh programme was therefore arranged. The principle was that they should do nothing which was not already everyday practice at De la Pole, though the events would have to be more concentrated than usual to give variety in a short time. The Ailsa charge nurse was invaluable here because he knew what would be agreeable to his patients; there was no point in trying to impose a foreign culture upon guests. There was another intention — to prove that an agreeable change of routine could be provided within the normal hospital budget.

The first few days were spent in looking round the hospital, with trips into Hull and visits to its museums, besides walks in the country.

On the sixth day the party divided into two. Half went with some De la Pole patients to an isolated seaside camp, where conditions are adequate though not luxurious. The normal routine there is a mixture of physical training and walking on the cliff, games on the beach, and bathing. The Ailsa patients more or less took over the "housework" and preferred to run their own routine, with frequent walks to a small resort. On most days on of the Ailsa patients went back to De la Pole and was replaced by a colleague, so that nearly all of them had a few days by the sea.

The patients remaining at De la Pole made two visits to the theatre in Hull, and took many short country walks and one long one. They visited the fish docks, Beverley Minster, an agricultural college, an ice-cream factory, and a brewery, and had occasional sessions in the occupational-therapy departments. At weekends and in the evenings the charge nurse sent such patients as he thought fit for it out on their own, and one patients was able to visit relations in Newcastle for a few days.

All the patients and their nurses went with a few of de la Pole's for day-long coach trip to Rievaulx and Byland Abbeys.

The De la Pole patients visiting Ailsa occupied the beds vacated by their opposite numbers. So pleasantly situated is the hospital and so beautiful the surrounding country that it was felt even by true-born Yorkshiremen that they had the best of the bargain.

At Ailsa, they enjoyed under their nurses a similar autonomy to that of the Scottish party at De la Pole.

Normally the morning was spent with country walks, but occasionally they organised their own physical exercise in the hospital grounds. They had much to see even on short half-day walks, and greatly enjoyed the change of scenery. They had many agreeable excursions in the afternoons: two visits to other mental hospitals to watch bowls matches; a visit to a theatre (during which the most withdrawn patient, who had spent twenty-five of his forty-four years in hospital without a break, was heard chuckling); several short rides to the coast where bathing was possible; an inspection of the U.S.A.A.F. base at Prestwick; a tour of the north side of the Clyde, including Loch Lomond; and, best of all, a day in Edinburgh with the Castle and the Zoo to inspect (no matter how inadequately), as well as a walk along Prince's Street and a look at Holyrood House.

THE RESULTS

What were the results of this exchange?

Many hospitals send patients to the seaside to stay in boarding-houses or in holiday camps and then announce with satisfaction that the patients have been accepted as normal. But perhaps they were already recovered! There is no reason why such patients should not have holidays, but others' needs are greater.

The people who really need the holiday are the patients who are far from normal, and who would not be accepted for one moment by any boarding-house keeper. Patients who have been in hospital for so many years that the resources of the hospital to help them are almost exhausted, despite their continued need for inpatient care, are the most likely to benefit greatly from a scheme such as this. They will remain in hospital (receiving hospital treatment from their own nurses), but they have a complete change of life in every other way.

It may be asked how benefit is to be measured? Certainly not in terms of discharges after a visit. Exchange holidays will be only one of many methods of treating the patient — none, on its own, being capable of curing him — but they may well prove a valuable adjunct to other measures.

All patients spoke very favourably of their holiday, and their speech and writings showed that they had absorbed much of what they had seen. Indeed one De la Pole patient was still saying a month later that be would much sooner be at Ailsa from every point of view.

The effects of the holiday certainly gave great pleasure to the relatives of the patients. Did it do the patients any harm? Only one of the De la Pole patients was upset by the change; for the first week he deteriorated somewhat, but thereafter he improved to become better than before. One Ailsa patient regressed and was more retarded at the end of the holiday.

Financially such an exchange visit need cost no more than coach hires. In this instance a holiday which was truly therapeutic was provided for 40 patients for two and a half weeks for £76 which was the cost of the transport.

As always happens with a pleasant change in routine, the need for drugs and physical methods of treatment almost disappeared, showing, (if it

does need showing still) that a happy and stimulating day is the most effective therapeutic agent for the long-stay patient. The nurses found it valuable too ; they had the opportunity to see how another hospital works, they could cross-examine their opposite numbers and defend their own methods, or learn how to adapt them so that they were more efficacious. Care of the long-stay patient is a laborious task and no immediate gains are apparent, but an added zest was given to the nurses' work both before and after this scheme.

We think this a scheme worth employing. Our only fear is that it will be abused and become debased. This can happen easily enough by providing expensive holidays in which a therapeutic aim is not constantly kept in mind, and most readily of all by sending patients of the type commonly found in the convalescent wards. It should be used in the first place only for truly long-stay patients with an active illness.

Many similar exchange visits could, we believe, be arranged between hospitals in different parts of the country. It must be pleasant to visit Scotland, but even industrial England has mental hospitals with much to offer. Furthermore in a large city there will be many different firms of great interest to the coutryman ; the cathedral city will attract the townsman ; and London hospitals could provide a fascinating base for the Provinces.

Congresses

OBSTETRICS AND GYNÆCOLOGY

THE 15th British Congress of Obstetrics and Gynæcology was held in Cardiff on July 14-16 under the chairmanship of Prof. G. I. STRACHAN.

In his opening address Sir WILLIAM FLETCHER SHAW traced the history of the early meetings between the Glasgow and North of England societies. The first Congress was held in 1921. He also mentioned that the idea of the British college was first mooted in Cardiff.

Remote Effects of Obstetrical Hazards

Dr. DUNCAN REID (Boston, Mass.) considered perinatal morbidity and congenital defects. Cerebral palsy in the U.S.A. was at the rate of 2.6 per 1000—a higher rate than those in Great Britain and Scandinavia. Birth injury was due to asphyxia, which could be divided into acute (for example, antepartum hæmorrhage and cord strangulation) and chronic (as in diabetes and postmaturity). In this atomic age the question of mutation should be borne in mind; and a great hazard to the fœtus was pelvimetry, especially in the early months.

Dr. C. M. DRILLIEN, discussing physical and mental handicap in the prematurely born, said that of infants weighing 3 lb. or less at birth 21 % were mentally retarded, 60 % were dull, and 22 % had a severe physical handicap.

Dr. HILDA KNOBLOCH discussed prematurity and development largely from the socioeconomic aspect. In early life organic factors were important, but after 3 years the socioeconomic factor played a large part.

Prof. SHEDDEN ADAM, reviewing the obstetrical hazard of premature birth, stressed the value of premarital and antenatal instruction.

Sir DUGALD BAIRD said that it was difficult to prevent prematurity, but that socioeconomic factors were of paramount importance.

Environmental Hazards of Pregnancy

Dr. ALICE STEWART showed that attempts during pregnancy to combine housework with paid employment are liable to increase the risk of premature labour and consequently of stillbirth. This risk was more pronounced if the paid employment was continued after the 28th week. In this country about 6 % of children who died of malignant disease during 1953-55 had been X-rayed in utero.

Dr. MARK FRASER discussed the residual effects of neonatal asphyxia and showed that even moderate asphyxia has after-effects on personality and motor coordination.

Dr. PASAMANICK showed that there was an association between the complications of pregnancy and neuropsychiatric disorders.

Stress Disorder in Gynæcology

Dr. DESMOND O'NEILL said that a high proportion of patients attending a gynæcological clinic were suffering from an illness arising wholly or mainly from emotional tension. More than a third of a series described pain as a symptom but no organic lesion could be discovered. A quarter of infertility cases had a tension element. He thought that gynæcological clinics were only too often designed to prevent the patient from talking.

Dr. HOWARD TAYLOR had studied pelvic pain with no obvious organic lesion and considered that there was an underlying vascular cause.

Œstrogen

Prof. R. J. KELLAR discussed the clinical applications of œstrogen assay. Œstrogen levels during normal pregnancy increased, but with pre-eclampsia there might be a notable fall. Blood-œstrogen could now be measured, and the estimation might be of value in treating pre-eclampsia.

Dr. G. I. SWYER, in a paper read by Prof. A. S. Duncan, remarked that the original synthetic œstrogen, stilbœstrol, produced unpleasant side-effects, and because of this other synthetic agents had been developed. These were, however, less potent as œstrogen agents. Methalenœstril was said to be without action on the endometrium, and was advocated for the treatment of menopausal syndrome.

Prof. TEN BERGE discussed œstriol assays as an aid in the treatment of pre-eclampsia. Induction of labour could be determined by serial estimations of œstriol in 24-hour specimens of urine.

Oxytoxic Drugs

Mr. A. J. WRIGLEY, opening a discussion on the use of oxytoxic drugs before the birth of the child, suggested that ergometrine should not be used as a routine. The oxytocin drip was associated with dangers, and study of maternal deaths indicated that a significant number of the patients had had an oxytocin drip.

Prof. J. CHASSAR MOIR believed that the oxytocin drip should be controlled with a graphic record showing the behaviour of the uterus. Ergometrine drip might be considered where the infant was dead in utero.

Mr. G. W. THEOBALD was enthusiastic as to the value of the oxytocin drip. He maintained that it was safe if the dosage was very low, and that ½ unit to 500ml. of 5 % glucose solution was a physiological dose and therefore required no supervision.

Prof. MCK. CAREY reported his results. All the oxytocin drips were combined with rupture of the membranes—originally high rupture but recently low rupture.

Mr. WRIGLEY, summing up, expressed himself as opposed to the use of oxytocin drip.

Parliament

Mental Health Bill

In the last stages of this Bill's parliamentary progress the Commons on July 24 accepted an amendment from the House of Lords that in the definition of "psychopathic" the phrase "persistent disorder or disability of mind" should be substituted for "persistent disorder of personality". The Bill received Royal Assent on July 29.

They also accepted a new clause, proposed by the Upper House, which will require regional hospital boards to notify the local health authorities which hospital had psychiatric beds ready to admit patients in a real emergency. In introducing the clause, Mr. Derek Walker-Smith, the Minister of Health, said that administrative arrangements would be made to give this information to general practitioners also.

Anonymous Discipline

The Minister defended the practice of withholding from publication the names of doctors fined by executive councils for neglect of duty, on the grounds that it was thought "to reflect the balance of the public interest". The procedure was substantially the same as in the days of the National Health Insurance and it commended itself to the profession as a whole.

Registration of Medical Auxiliaries

The Government have considered a scheme for statutory registration worked out with the representatives of the medical auxiliaries concerned,, the views of the medical profession on that scheme, and the comments of the professional bodies on those views, and have decided to introduce legislation at an early opportunity.

Letters to the Editor

ISOLATION OF HÆMADSORPTION VIRUS FROM A NATURALLY INFECTED ADULT

SIR,—The hæmadsorption viruses, types 1 and 2 (HA1 and HA2), were first isolated by Chanock et al.[1] from cases of respiratory disease among children in the United States. Petersen and von Magnus[2] and Sutton et al.[3] have also recovered them from children in Denmark and in England respectively. Andrewes et al.[4] have suggested the name "parainfluenza viruses" for that group of myxoviruses of which they form part. Reichelderfer et al.[5] administered tissue-culture fluids containing HA2 virus to adult human volunteers, who became infected, and some secondary spread occurred in the institution in which the trials were carried out. Apart from this rather special instance, natural infection of adults by these agents has not so far been reported. The following details of a household outbreak therefore seem worth recording.

On the evening of Nov. 24, 1958, an adult, aged 40, fell ill with malaise, anorexia, and headache. By the next morning she was considerably worse with a temperature of 102°F., severe headache and nuchal pain, a red inflamed throat, tracheitis, and nausea. On examination, there was epigastric tenderness but no chest signs were detected clinically. The illness lasted about one week.

On Nov. 26 a child, aged 3, fell ill with a high temperature and severe croup which gradually resolved over four or five days.

Another adult, aged 41, became ill on Nov. 30 with upper respiratory symptoms, severe sore throat, and tracheitis, also lasting for one week.

In all three cases convalescence was slow.

Four other children, aged from 13 to 5 years, escaped clinical infection, but an 11-year-old had a very mild coryza-like illness during the previous week and may conceivably have been the source of this outbreak.

A throat swab from the first adult, collected on Nov. 25, was inoculated into monkey-kidney tissue-culture tubes by two of us (P.N.M. and M.C.). These were subcultured using tissue cells and medium into further monkey-kidney tubes in which haemadsorption, using human erythrocytes, was detected on the third day of incubation. The virus was found to be serologically indistinguishable from HA2 virus (para-influenza 1). Convalescent sera from the adult cases contained haemagglutination-inhibiting and neutralising antibodies against HA2 virus. It is therefore probable that the patient's influenza-like illness was caused by infection with this virus.

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RADIOIODINE TREATMENT OF HYPERTHYROIDISM

SIR,—I was very interested in the paper by Dr. Abbatt and his colleagues (April 18) on the presence of iodinated tyrosines in the plasma of patients with thyrotoxicosis, promising some help in the estimation of correct dosage for radioiodine treatment of hyperthyroidism. One point they made (that patients with large thyroid glands require an unexpectedly high radiation-dose per gramme of tissue to restore them to an euthyroid state), can be explained simply by the hypothesis that to achieve euthyroidism one needs to leave intact a constant mass of thyroid tissue and *not* to destroy a constant proportion of the gland. After all, this is just what a surgeon does: when performing a subtotal thyroidectomy for hyperthyroidism he usually excises a larger proportion of a large gland and a smaller proportion of a small gland.

It is a reasonable initial supposition that a constant radiation-dose, of 10,000 rads or whatever is selected, does not do this but destroys a fixed proportion of the gland. Suppose, for instance, that one needs to leave 10 g. of thyroid and that 10 mC ^{131}I giving 10,000 rads will destroy three-quarters of a given 10 g. gland. Then if one wishes to leave 10 g. undestroyed when treating a similar 20 g. gland the radiation dose would only need to be 6,666 rads, from 3⅓ mC instead of 5 mC, but for a 100 g. gland would need to be 12,000 rads, from 30 instead of 25 mC. This calculation assumes that the proportion of thyroid destroyed bears a linear relationship to the radiation dose, but if, as is probable, there is a difference of radiosensitivity among the thyroid cells, the relationship is more likely to be S-shaped and even larger differences in dosage needed.

Difficulty in constructing a formula to allow for this should not stop us from allowing for the observed fact that small thyroid glands need a lower-than-expected radiation dosage and large glands a higher dosage; or that in estimating the number of millicuries to be given one should multiply or divide by *more* than the difference in gland mass, quite apart from other factors.

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CHROMOSOMES AND INTERSEXUALITY

SIR,—Observations made recently[1] on a case of human intersexuality are relevant to the thesis of your leading article of April 4. This work was done in collaboration with my colleagues at this Institute, the American Oncologic Hospital, and the University of Pennsylvania, all in Philadelphia.

The individual concerned, a 12-year-old Negro, exhibited essentially male external anatomy, including genitalia. The chief complaint was a recently developed gynæcomastia. Histological examination of the scrotal contents revealed ovotestis, fallopian tube, endometrium, and myometrium in the right sac, atrophic testis with seminiferous tubules in the left. A clinical diagnosis of true hermaphroditism resulted.

The sex chromatin pattern in a variety of cell and tissue types (including cells within the seminiferous tubules) was female.

Chromosome studies were carried out on squash preparations of 3-to-4-day cultures of leucocytes separated from peripheral blood, according to methods previously developed by us[2,3]. The great majority of cells proved to have 46 chromosomes. Those analysed in detail were consistent with an interpretation of an XX sex chromosome constitution. The extra chromosome in each of two cells interpreted as having 47 chromosomes was not the Y, ruling out sex chromosome mosaicism in this cell type.

Thus, cases of intersexuality in humans may involve mechanisms other than aberrations in the number of sex chromosomes.

DAVID A. HUNGERFORD, Junior Research Fellow

The Institute for Cancer Research, Philadelphia.

SOMATIC CHROMOSOMES IN MONGOLISM

SIR,—The surprising finding of the Edinburgh group and others, of additional chromosome in cases of mongolism may give rise to different speculations as to the origin of this chromosome. It would be most interesting to learn if this additional chromosome was also found in immediate relatives of mongoloids.

Jerusalem, Israel. K. FRIED.

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THE SEALED COLOSTOMY BAG

SIR,—The recent correspondence on colostomy bags prompts me to describe a helpful tip.

These disposable plastic colostomy bags are very valuable, but unfortunately the skin around the stoma may develop a sensitivity reaction following repeated application of the adhesive plaster. This presents a problem in treatment since it is usually recommended that the skin should be kept free of powder or ointment in order to allow the plaster to adhere.

I have found, however, that one of the barrier creams, "Kerodex 71", can be used without interfering with the adhesiveness of the plaster. It should be rubbed well in until the surface of the skin is dry before applying the plaster. If this is used on each occasion that the bag is changed, the skin around the colostomy remain healthy even if plastic bags are worn throughout the twenty-four hours.

GEORGE ANSELL.

Liverpool.

ALCOHOL AND DRIVING ABILITY

SIR,—In your annotation on July 18 you quote the official figures of the Ministry of Transport, which, as regards accidents due to drink, are not reliable. They were stigmatised years ago in the *Medical-Legal Journal* by an experienced chief constable as probably only 10 % of the actual; and many, perhaps most, of those who have had experience of these cases are of the same opinion. The excess of accidents after the pubs close at the weekends are not due to "increased road activity, as crowds emerge from the cinemas and theatres", but to drinking drivers and pedestrians. The fatal accidents on Saturdays, for instance, increase threefold after 10 p.m., whilst the traffic flow is a good deal less [1], as shown in a graph compiled from Road Research Laboratory figures [1], and the bad night accidents do not occur at busy traffic centres but in the country or in suburbs where speeding is possible.

I reviewed all the fatal road accidents in Leicester, Leicestershire, and Rutland for the year period 1953-55 and concluded that, in this area, half the deaths resulting from accidents after 10 p.m., and 10 % of all road deaths, were due to drinking drivers and pedestrians [2]. This view was fully confirmed by Miss Jeffcoate, of the Road Research Laboratory, as you mention, and by many other informed persons. A large proportion of "careless drivers" are really slightly intoxicated.

N. I. SPRIGGS.

Leicester.

APPOSITION OF SKIN EDGES

SIR,—A sutureless method of accurately apposing the skin edges of surgical incisions has been found effective in avoiding the child's apprehension of suture removal and in facilitating the early discharge of some adult patients.

A medium-strength monofilament subcuticular suture is inserted with a straight needle. The bites must be sufficiently deep to the skin level and to the cut surface of the subcutaneous tissue to produce well-marked eversion of the edges. One end of the suture is cut short, the other left long. 1½ in. ribbon gauze soaked in Whitehead's varnish is closely and evenly applied over the incision area. When dry, a more extensive layer of 'Nobecutane' is added. After a few minutes the impregnated gauze ribbon will be firmly adherent to the skin. The suture is then pulled out. Two such sutures, each responsible for half the length, is better if the incision is a long one. If the incision runs counter to the lines of Lange or there is considerable fat, fine subcutaneous catgut sutures should be added.

D. LANG STEVENSON.

London, W.1.

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In England Now

A Running Commentary by Peripatetic Correspondents.

We've learnt quite a lot about pigs since we began keeping them eighteen months ago. As soon as we saw Marilyn and Sabrina we fell for them-which was a pity in a way because it undermined our bargaining position. When we got them home each was allotted a private maternity ward (pen) in our embarrassingly large and hitherto unoccupied piggery. Sabrina ate her head off from the word go, but Marilyn clearly suffered from anorexia. After about five days on a reducing diet we called in the vet, who took her temperature (P.R.), declared it normal, and confidently diagnosed constipation. The treatment, it seemed, was an enema; but somehow the proposal didn't attract us. Happily, after a week, Marilyn's appetite returned and the crisis was over. On looking back we think this was a psychosomatic disorder due to the move, but we doubt whether the veterinary world would accept such a 20th-century diagnosis.

Encouraged by two fine litters from M. and S., we soon decided to but two more in-pig gilts (primigravidæ); and this time we went in for pedigree stock. Brigitte and Anita were selected from a fine herd and duly farrowed in the private wing. All went well with Brigitte, but poor Anita proved so clumsy that she killed half a dozen piglets before we took the remaining six away from her—maimed and battered little things that could hardly stand. Four-hourly feeds by hand necessitated regular nocturnal visits to the piggery, but we were rewarded with five survivors—of rather poor quality.

Since then we've had our ups and downs, with a good deal of clinical experience. Three in one litter developed pneumococcal pneumonia and died in spite of huge doses om time-expired penicillin. We have also had one classical case of tetanus and one P.U.O. which at necropsy proved to be pericarditis. We decided to select and keep our own gilts for breeding, but that hasn't been an unqualified success. Jayne, selected for length, grew to be so long that she could hardly control her hind legs: so she went for pork. Diana developed a mysterious illness with extreme lassitude and anorexia. The vet diagnosed constipation, and this time, being more confident, we decided to carry out his instructions. I am not describing this therapeutic episode; but when a week later her sister Denise developed the same symptoms, and recovered as rapidly without any treatment, we began to feel that constipation is an overworked diagnosis.

We are still keeping pigs, though they are not yet keeping us. We often have reason to think of the old saying: "Dogs look up to you, cats look down on you, but pigs is equal."

Occasional Book

DR. ZHIVAGO

SOMEONE has said that *Dr. Zhivago* [1] is a novel fit only for middleaged spinsters. No doubt he thought he was damning the book out of hand; but even if the remark is true, there are few people so little cushioned from the bare realities of life as are these same middle-aged spinsters. Indeed it is commonly an inability to equivocate and to gloss over the hard facts of love and of life that will lead a woman to choose (consciously or unconsciously) to remain single. Integrity, insight, and perfectionism are often the painful burdens of spinster and artist alike. Either may be "wrong-headed"; either may have uncomfortable and embarrassing things to say; and for both, the reward is liable to be the ambiguous recognition usually afforded by society to those who are too honest for their own good.

In recent years we have seen two major Russian novels which have brought this fate upon their

1. Dr. Zhivago. By BORIS PASTURNAK. London: Collins. 1958. 21s.

authors, *Dr. Zhivago* and *Not by Bread Alone*[2]. These two books present interesting parallels and if we compare them we may find an answer to a question which, in its most trivial aspect, may be put as follows: Why did Pasternak choose to make his central figure a doctor?

A work of art may be defined as a complete utterance (in whatever medium the artist works) which perfectly expresses a concept. If the concept is small or narrow, the expression of it may be perfect but the achievement can hardly be regarded as a great one. A great work therefore satisfies the further requirement that it deals with a concept so profound as to have a universal applicability.

In *Not by Bread Alone*, Dudintsev tells the story of a schoolmaster who is gripped by the fever of discovery. Let it not be thought that this is a small theme merely because Lopatkin happened to apply a new technical principle to the mundane business of casting pipes. A man who glimpses God will see Him whole, if only for a moment; he does not gaze his fill upon a single Toe. For Lopatkin the fight to achieve recognition for his invention in the face of jealousy and cynical plagiarism becomes a microcosm of the conflict between truth and lies, Good and Evil. Since Lopatkin is an idealist, he pursues this fight to the end; since he is a good Russian, his genuine desire is to give his invention to the Mother Country; but since he is a Communist, those who obstruct his progress are not called, simply, bad men, but Capitalists. At this point, the universality of the theme becomes obscured by irrelevant political jargon and Dudintsev forfeits his claim to greatness. Ironically enough, despite this equating of Good *v.* Bad to Communism *v.* Capitalism, official circles condemned Dudintsev, not for faulty art but for faulty doctrine.

Apart from this tiresome flaw, Dudintsev's novel has the unity and penetration to make it a major work. Dudintsev describes a central episode in the life of a single-minded man who suffers privation, but who is given love and loyalty for the sake of the original truth that is in him, and so achieves success.

Now *Dr. Zhivago* is a novel on a broader scale; it takes for its theme no less a subject than the revulsion of a poet against the narrow delusions of fanaticism. Pasternak depicts life empirically, taking it as it comes; he does not warp it to fit a theory but rather selects from it so as to reveal its moods. Each relationship is set free by him to take whatever shape is inherent in it, and is not constrained to any arbitrary form. So it is that Zhivago's own growth, carried on in the midst of Revolution, manages to typify the far more durable organic principle of Evolution—"faster than Empire and more slow". Yury Zhivago possesses what might be called "green fingers" for the cultivation of the human spirit. Whereas Lopatkin sets out to establish a limited truth, which proves to be just within his powers, Zhivago sets out with the much more fundamental aim of *living* a truth at any cost—and dies in the attempt.

Why, then, was it artistically correct for Zhivago to have been a doctor. One can see that he could not have been another Lopatkin without lowering his sights considerably. Lopatkin was determined to express the originality that lay in his invention; but Zhivago, like Pasternak himself, was resolved to express in his way of life the originality that dwelt in him as a man. Both were impeded by the cynicism of lesser men, but Lopatkin strove for a finite political objective, Zhivago for a spiritual one. Yet if Zhivago was intented by his creator to seek a spiritual goal, might be not have been more appropriately cast as a priest?

It seems to me that one reason for assigning a secular role to Yury Zhivago may have been the need to preserve the universality of the theme. Pasternak may not in the least have meant to portray an ideal at odds with that of a priest; but he may have wished to avoid ideological clichés of the sort which marred *Not by Bread Alone*. For in Russia, Church *v.* State is one of those rigid sectarian conflicts, so dear to narrow minds, which depend upon the spurious simplification of issues. We might compare it to other absolute dichotomies, such as Aryan *v.* Jew, Black *v.* White, East *v.* West, Scientist *v.* Humanist, which at their best are too crude and at their worst, insane. For the doctor, conflicts of this sort provide little more than clinical material. For him, the only real issue is Life *v.* Death, and even that is often a matter of degree. If, therefore it was Pasternak's intention to represent, in Zhivago, the concept of individuality and freedom from dogma, it would seem proper enough to cast him as a doctor.

So, at least, we should like to believe; but one cannot help suspecting that this interpretation is a little too flattering. It may after all be that dogma is indispensable to Medicine, and that Pasternak was more concerned to portray Zhivago the poet than Zhivago the doctor.

CYNIC.

2. Dudintsev's Not by Bread Alone (translated by E. Bone), London: Hutchinson, 1957, 18s.

Obituary

IRENE EWING

O.B.E., M.Sc., LL.D., D.C.L.

LADY EWING, who died on July 16 in Manchester, was known all over the world for her contributions to the training and education of deaf children. She was a born teacher, and she had the rare ability of seeing the possibilities of some new fact or idea and the still rarer ability to apply it. A wonderful propagandist for what she considered the right ways for tackling the problem of deaf children, she brought to public notice the need for university status for training teachers of the deaf, for early training of deaf children and the vital importance of the mother and the home environment in that early training, and for tests of hearing suitable for very young children and for children who could hear sound but could not hear speech.

As Miss Irene Goldsack, she was the first teacher-in-charge of the first public residential kindergarten for deaf children which was opened as a separate branch of the Royal Schools for the Deaf in 1912. Six years later the University of Manchester accepted a trust to endow a lectureship for training teachers of the deaf and she became the first holder of this post. After her marriage in 1922 she had the help of her husband and successor, now Sir Alexander Ewing, and together they built up What is still the only university department for the education of the deaf in this country.

Lady Ewing and her husband visited other countries to study the problems of deaf children and to help in their solution, and they collaborated in a number of books about their specialty. The International Congress on Modern Educational Treatment of Deafness, which was held in Manchester last year, showed the recognition which their work had won both in this country and abroad.

J.L.B. writes:

"Lady Ewing brought to her work great gifts of imagination and sympathy. She had a singularly penetrating insight into the child mind. She was an exponent of the art of getting the best out of a child in the 'test' situation, and the demonstration of her skill was an unforgettable experience. In the past, education of the deaf child began sometimes at seven years and sometimes at five, by which time the child had lost his

natural voice as well as the important benefits the normal child gains through voices, sounds, fun and games, and friendships. Perhaps her greatest contribution was the proof of how much could be done for children who were born deaf from the earliest days of babyhood upwards, firstly by and through the mother, and later by the teacher as well."

ERIC LAUDER CALDWELL-SMITH

O.B.E., M.A., M.B. Cantab.

DR. Caldwell-Smith, until lately chief medical officer to the Shipping Federation and Merchant Navy Establishment, died on July 16 at the age of 67. He had all his his life worked hard to promote health and welfare of the Merchant Navy.

His father was for many years medical officer of health for Wandsworth. He was educated at Oundle School and Trinity College, Cambridge. In 1914 he left St. Thomas's Hospital to serve for a year as a surgeon probationer in the Navy, and after he had qualified in 1915 he returned to serve with the Naval Medical Service till 1919. After he was demobilised he served on Ministry of Pensions boards and became medical referee of the Shipping Federation and to other shipping associations at Lloyds. His experience of all the medical aspects of life at sea led to his appointment to the Ministry of Transport's commission for the revision of the *Ship Captain's Medical Guide* and the merchant shipping medical scales. He was also medical adviser to the British shipowners' delegate on the joint I.L.O./W.H.O. Commission on the hygiene of seafarers.

J. G. W. writes:

"Under Caldwell-Smith's guidance the Shipping Federation built up at major ports in the United Kingdom, long before the advent of the N.H.S., a first-class free medical service for seafarers of all nations. The service also vets all new recruits to the merchant navy pool in this country. Caldwell-Smith also was a member of the editorial board of the *Ship Captain's Medical Guide*, a classic of its kind that has long been used effectively on ships that do not carry a ship's surgeon and in wireless telegraphy exchanges between captains at sea and doctors ashore. At meetings in Geneva of the joint I.L.O./W.H.O. Commission on the hygiene of seafarers Caldwell-Smith never left his fellow delegates in doubt as to where he stood on any point under discussion. Normally of somewhat austere demeanour he could relax in congenial company, and he will be missed by his medical colleagues in the shipping industry who had enjoyed social occasions with him and who all respected his knowledge of maritime medicine."

PETER WILLIAM THOMAS HOLLIS

M.B. Lond.

DR. P.W.T. Hollis, medical director of the mass-radiography service in Devon, died on May 7 as the result of a motor accident. He was 37 years of age.

He was educated at Trent College and Guy's Hospital, where he held the posts of house-physician and house-surgeon after qualifying in 1944. In 1946 he moved to Devon where he became assistant medical officer at Hawkmoor Chest Hospital, Bovey Tracey. In 1952 he joined the staff of the mass-radiography unit in Bristol as assistant director. Last year he returned to Devon to take charge of the mass-radiography service there. He leaves a widow and two sons.

Notes and News

NEW L.C.C. HEALTH CENTRE

The London County Council have opened a "public health" centre at their Ashburton estate at Roehampton. It provides clinics for expectant mothers, infants, and the 2-5 age group, all the preventive inoculations are given, and for school children there are minor ailment and special investigation clinics, and consultative ophthalmic and orthoptic clinics staffed by the hospital service. Dental treatment is available for expectant and nursing mothers, and for children. A whole-time doctor will be based on the centre, with teams of health visitors and social workers. The centre will work in close cooperation with hospital staffs and general practitioners and it is hoped that the local family doctors will regard the centre as their own and make full use of the services of the health visitors and other staff.

The centre is a two-storey building incorporated in a three-storey block of flats. In designing it the Council's architect, Mr. Hubert Bennett, F.R.I.B.A., has kept a wary eye on the future. It has been planned to accommodate all the present public health clinical services, but it could also readily offer working space to, say chiropodists and dental auxiliaries. The centre is named after William Harvey, who spent the last years of his life in Roehampton, and it was formally and appropriately opened on July 20 by Sir Charles Dodds, the Harveian librarian of the Royal College of Physicians of London.

TUBERCULOSIS AND LEPROSY IN WEST AFRICA

Tuberculosis and leprosy were the subjects of a conference held in Northern Nigeria last February with Dr. R. Lewthwaite presiding.

Summarising the contributions on tuberculosis, Prof. Frederick Heaf said that, though infection appeared widespread, particularly in children, the comparative rarity of tuberculous meningitis was again confirmed. The important practical point that open tuberculosis in the mother is no bar to breastfeeding received approval. The urgent need for discovering the primary lesion and treating it was emphasised by many, and the advantage gained by giving isoniazid alone as a prophylactic in recently converted or briskly reacting tuberculin-positive children was increasingly appreciated. Although there was reluctance to use isoniazid alone in treatment of radiological lesions, many had approved its use in advanced chronic cases to restrict the spread of infection.

The disease was becoming more chronic, and the extension of life by modern treatment raised many difficulties, particularly when drug resistance developed in partially cured patients. The continuous care and observation which the treated case needs for one or two years would put an increasing burden on tuberculosis clinics, and facilities must be arranged accordingly. Erection of costly institutions must not be permitted to impoverish the preventive services, the need for which must be emphasised everywhere. Many more beds and urban clinics were required for treatment, but institutions in general should be of simple construction so that the main expenditure could be on radiographic and laboratory facilities. Long-term chemotherapy must be available for all; and, to encourage the patient to take the prescribed drugs regularly, there should be treatment centres within easy reach of patients' homes. General dispensaries could be so used. In view of the rising menace of drug resistance, there should be easily accessible laboratories where drug-sensitivity tests could be done.

Dr. T. F. Davey, discussing the immunological relation between tuberculosis and leprosy, regarded the suggestion that infection with *Mycobacterium tuberculosis* induced also a tissue resistance to *Myco. leprae* as too superficial to be wholly true. A delayed type of tissue reaction could be evoked by material other than leprosy bacilli, such as B.C.G., a lipid extract of human tubercle bacilli, and a small group of inorganic substances which included silica and beryllium. He regarded the Mitsuda reaction to lepromin as a non-specific tissue response of tuberculoid type unrelated to particle size, which might be induced by a range of substances, of low or negligible pathogenicity, which could sensitise the tissues. B.C.G., in producing acquired resistance to the tubercle bacillus, would in many people also produce resistance to infection with leprosy; but in a considerable minority the sensitivity produced was weak or transient, and these were likely to become infected if confronted with the leprosy bacillus. He concluded that B.C.G. inoculation should be undertaken at an early age, and be repeated as necessary.

Dr. R. E. Pfaltzgraff had found the Mantoux test positive in 58 % of children in intimate contact with infectious cases of leprosy and in 18 % of children in contact with non-infectious cases. The children with a negative Mantoux test were given B.C.G. at the time of the reading of the test. During the next two and a half years only 3 of 253 children (1.2 %) had developed leprosy, compared with 43 of 189 children (23 %) in the two and a half years before the production of a positive Mantoux test by "natural" means or by B.C.G. vaccination. He concluded that this production is of value as affording prophylaxis against leprosy in a majority of children.

Dr. C. M. Ross said that the periods of weaning, puberty, pregnancy, and lactation—all of nutritional importance—were associated with a breaking-down of resistance to leprosy and with a relapse of arrested cases.

Dr. J. A. Dreisbach pointed out that improved treatment had led to earlier case-finding, and the majority could be restored to their former status. Deformities and complications were now largely preventable if the cooperation of the patient was secured by simple instruction on the early signs and symptoms of reaction and drug toxicity. He described some of the specific problems involved in dealing with anaesthesia and peripheral paralysis, and the preoperative and surgical measures that could be undertaken.

Dr. R. J. W. Rees, describing work on the cultivation of the rat-leprosy bacillus, said that in vivo it was found to divide every 7–8 days. Assuming a similar generation-time for the human bacillus, and considering analogies in the known date for the tubercle bacillus and tuberculosis, calculations suggested an incubation period in human leprosy of two years or more, which accorded with clinical observations.

RECRUITMENT OF PHYSIOTHERAPISTS

Representatives of the British Association of Physical Medicine and of the Chartered Society of Physiotherapy have been considering the present shortage of physiotherapists and of teachers of physiotherapy. Figures obtained by the society from employing authorities and a sample survey made by the association show a shortage in regional-hospital-board hospitals of about 14 %, in London teaching hospitals of about 6 %, and in provincial teaching hospitals of about 10 %. If the London area is excluded, the overall shortage is about 20 %. To attract recruits to physiotherapy and to retain in the National Health Service those who have qualified, both bodies feel that there is an urgent need for improvement in the salaries and conditions of service of physiotherapists. They believe that the rewards for responsibility and length of service are at present insufficient, and they point out that the rates of salary for part-time staff make it uneconomic for married women to return to work.

University of Oxford

On July 11 the following degrees were conferred:

D.M.—D. F. van Zwanenberg.

B.M.—A. M. S. Sherrington, N. C. Keddie, J. N. Fergus, H. J. G. Kersey, Robert Porter, M. B. Lee, A. C. Branfoot, Roger Dee, B. P. Ellis, A. B. M. Freeman, G. W. Thompson, Jacqueline B. P. White, Judith H. Mundlak, Gillian R. Ford; J. C. O'Sullivan, A. M. Bold, H. D. Weintraub, C. A. Fuge, M. G. M. Jukes (in absentia).

University of London

The following appointments have been announced:

Dr. D. J. Anderson, reader in physiology in relation to dentistry at Guy's Hospital Medical School; Dr. F. Hobbiger, reader in pharmacology at Middlesex Hospital Medical School; Dr. M. B. Shapiro, reader in psychology at the Institute of Psychiatry; and Dr. J. W. Stewart, reader in haematology at Middlesex Hospital Medical School.

On June 17 the degree of M.D. was awarded to Gerald Sandler.

University of Manchester

At recent examinations the following were successful:

Ch.M.—W. W. Wilson.

M.B., Ch.B.—P. H. Fentem (honours); J. M. Anderton, Gillian A. Appleton, D. A. Ashworth, Dorothea P. J. Badger, G. C. Bentley, D. C. Beton, P. J. Beynon, Elizabeth H. Bradbury, A. K. Brown, David Charlesworth, T. A. Cook, J. W. Crossley, N. C. Eccles, F. B. Ellis, H. B. Fearnley, Sylvia M. Francis, Raymond Gamble, J. B. Garland, Jill N. Gordon, R. A. W. Guthrie, J. D. Hamlett, D. W. Holden, Shirley Holt, J. W. Hope, Peter Hughes, P. W. Jackson, T. P. Johnson, Margaret G. Jones, J. H. Kilshaw, Astrida Lambergs, Moraig Leslie, P. N. McIntyre, Beryl Melton, G. F. Mills, Gerald Milner, J. C. Milner, J. R. S. More, J. J. Nattrass, G. F. R. Ogilvie, D. R. Petchey, C. J. Riley, Jean Ritchie, J. K. Roberts, R. M. Sandler, B. A. Sides, Maxine Stanford, Maureen Statham, E. P. Trowler, Lilian Tyers, G. K. Vanner, Harvey Wacks, P. B. Walsh, Joseph Wanka, Ronald Wann, Graham White, Ann Wrigglesworth.

Royal College of Obstetricians and Gynæcologists

At a meeting of the council on July 25 with Prof. A. M. Claye, the president, in the chair, the following officers were re-elected:

President, A. M. Claye; vice-presidents, G. F. Gibberd, S. W. Maslen-Jones; hon. Secretary, I.M. Jackson; hon. librarian, A. J. McNair; hon. curator of the museum, R. A. Brews.

J. H. Pell was elected hon. treasurer.

H. J. A. Conte-Mendoza was admitted to the fellowship posthumously, and the following were elected to the membership:

R. M. Adam, Margaret A. Austin, Pamela M. Bacon, G. S. Banwell, Ajilady Savithri Bhandary, Debabrata Bhattacharyya, Sridevi Biswas, Basil Bloch, Audrey A. Boutwood, M. D. Cameron, Aseem Prakash Chakravorty, Srinivas Krishnama Char, David Charles, Sunil Kumar Chaudhuri, Ellis Cooper, J. D. Crowley, I. J. Dalrymple, Kaushlya Dodeja, D. A. S. Eddie, E. J. Esler, Jill M. Evans, W. D. Fraser, Srashi Kumari Ghai, J. D. Hehir, Alexander Herriot, B. J. H. Insull, Chelliah Kathirkamanathan, hagwanti Gobindram Kotwani, Tye-Hin Lean, Sydney Lubert, R. H. Lumer, Kathleen McKee, R. R. Macdonald, Sanat Kumar Mandal, A. W. Maxwell, C. D. Moloney, Kamala Mukherjee, Margaret H. Murray, K. J. O'Connor, C. J. B. Orr, Olga M. Rampersaud, J. A. Riedel, J. G. Robertson, M. L. Robinson, D. W. A. Rodwell, Nagendra Nath Roy Chowdhury, C. J. Ryan, J. M. Samson, S. A. Seligman, N. G. Steere, Doreen P. G. Stewart, R. H. Syred, Brenda A. Taylor, J. H. Taylor, Gytha Wade, Pearl A. Walker, Jayaweera Bandara Wedande, C. R. Whitfield, A. C. Wilson.

Royal College of Physicians of Edinburgh

At a meeting of the college on July 28 with Dr. A. Rae Gilchrist, the president, in the chair, the following were elected to the membership:

Eric Samuel, J. M. Stowers, Pagadala Damodaram, Haqiqat Rae Ohri, P. A. Duke, J. F. C.leobury, Mahadeva Krishnaswamy, Prasanta Krishna Ghosh, D. J. Brewer, Alfarid Mahmudur Rahman, Rajindar Singh Gill, P. A. Ellis, Kulwant Singh Raghuwansh Bedi, Ihsan-Ul-Haque, Hymie Gordon, Hyam Isaacs, H. C. B. Barnes, G. B. Langan, Fazal-Ur-Rahman, Jibon Chandra Barua, Sankhadhar Barua, R. H. Davison, Abdul Hamid Mehal, Thamboo Pragasam Devaraj, Prasant Kumar Adhikari, Gustav Clenner, E. L. Harris, Robert Hume, Rosie Tse Tse Young, J. S. Eapen, Indira Krupanidhi, H. A. Meredith, Kam-Chin Tsang, Ikram-Ul-Haq, Raghava Parameswaran Pillay, Pamela E. B. Rodgers, Ram Krishana Singh Dhariwal, H. L. Utian, R. M. McCredie, Sudhakar Ramchandra Kamat, Munawar Hayat, Mohammad Arif Ilahi, David Rabinowitz.

Central Health Services Council

The council have re-elected Lord Cohen of Birkenhead as their chairman for 1959-60. They have elected Mr. E. F. Collingwood, Chairman of the Newcastle Regional Hospital Board, to be their vice-chairman in place of the late Sir Cecil Oakes.

The Minister of Health has appointed Prof. R. E. Tunbridge to the council. Professor Tunbridge has also been appointed to the standing medical, nursing, and cancer and radiotherapy advisory committees. Other new medical appointments to standing advisory committees are: Dr. Annis Gillie and Dr. T. McC. Montfrod (ophthalmic), and Dr. J. O. F. Davies (nursing).

Early Pharmacies

Five historical pharmacies have now been reconstructed in the hall of the Wellcome Historical Medical Museum, London, where they are on view to the public for an indefinite period. Much of the contemporary furniture and fittings was bought by the late Sir Henry Wellcome, and was originally exhibited before the war.

In manner the shops range from the baroque of 17-century Italy to the elaborate workmanship of the Spanish (Portes Pharmacy, Granada, 1790) and traditional Arab pharmacies. Two representative English establishments are included: the shopfront of 1680 is complete with Lambeth Delft ware and a pill-tile, while the original windows from John Bell's pharmacy in Oxford Street (1798) contain, among other things, a large bottle for leeches and another full of gilded pills.

Army Appointments

Brigadier R. A. Stephen has been appointed director of surgery and consulting surgeon to the Army and Brigadier W. R. M. Drew director of medicine and consulting physician to the Army.

Dr. W. G. Senior, chief dental officer to the Ministry of Health, will take office as chairman of the Royal Society of Health in October.

Mr. David Band has been elected president of the British Association of Urological Surgeons.

Dr. Thomas Gardner has been awarded one of the Ford Foundation English-Speaking Union travel grants for doctors in general practice.

Medical Education.—The World Health Organisation has published this annotated bibliography of 2500 papers on medical education published between 1946 and 1955. In this country copies (£1 15s.) may be obtained through H. M. Stationery Office, P.O. Box 569, London, S.E.1.

CORRIGENDUM: *The Hyperventilation Syndrome.*—In Dr. D.M. Davies' letter (July 25, p. 63) the last word in the 6th line of the last paragraph should have been "simulate".